FINAL
Preliminary Assessment Report
PANG Base Enclave
Portland, Oregon

Perfluorooctane-Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites
ARNG Installations, Nationwide

May 2020

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Acronyms and Abbreviations

AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
AOI	Area of Interest
ARNG	Army National Guard
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CRSA	Columbia River Sand Aquifer
CSM	conceptual site model
DEQ	Department of Environmental Quality
°F	degrees Fahrenheit
FTA	fire training area
ORARNG	Oregon Army National Guard
PA	Preliminary Assessment
PANG	Portland Air National Guard
PDX	Portland International Airport
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PILs	Pollutant Initiation Levels
SI	Site Inspection
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

Executive Summary

The United States Army Corps of Engineers Baltimore District on behalf of the Army National Guard (ARNG)-Installations & Environment Division, Cleanup Branch contracted AECOM Technical Services, Inc. (AECOM) to perform *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide*. The ARNG is assessing potential effects on human health related to processes at facilities that used per- and poly-fluoroalkyl substances (PFAS), primarily in the form of aqueous film forming foam released as part of firefighting activities, although other PFAS sources are possible.

AECOM completed a PA for PFAS at the Portland Air National Guard (PANG) Base Enclave in Portland, Oregon, to assess potential PFAS release areas and exposure pathways to receptors. The performance of this PA included the following tasks:

- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a site visit on 14 September 2018
- Interviewed current Oregon ARNG personnel during the site visit as well as environmental managers and operations staff
- Completed visual survey inspections to confirm absence of PFAS-related activities and documented with photographs

No Area(s) of Interest related to potential PFAS use, release, or storage were identified at the PANG Base Enclave during the PA; however, several potential PFAS sources are located adjacent to the facility. (**Figure ES-1**). Based on facility history and interviews with various personnel, there is the potential for exposure to PFAS contamination in surface water and groundwater under the facility from adjacent sources; however; there is no potential for exposure to PFAS contamination in surface soil, subsurface soil, or sediment.

CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at PANG Base Enclave, OR			
REVISED	4/17/2019	GIS BY	MS	4/17/2019
SCALE	1:4,800	CHK BY	TK	4/17/2019
Base Map: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, ©		PM	RG	4/17/2019

Legend

- Potential PFAS Release
- No Suspected Release
- Facility Boundary
- Columbia South Shore Well Field
- Water Body
- Wetland
- Pipeline

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Summary of Findings

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Figure ES-1

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1. Introduction

1.1 Authority and Purpose

The United States (US) Army Corps of Engineers (USACE) Baltimore District on behalf of the Army National Guard (ARNG)-Installations & Environment Division, Cleanup Branch contracted AECOM Technical Services, Inc. (AECOM) to perform *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide* under Contract Number W912DR-12-D-0014, Task Order W912DR17F0192, issued 11 August 2017, and Modification 01 issued 30 September 2017. The ARNG is assessing potential effects on human health related to processes at facilities that used per- and poly-fluoroalkyl substances (PFAS), primarily in the form of aqueous film forming foam (AFFF) released as part of firefighting activities, although other PFAS sources are possible. In addition, the ARNG is assessing businesses or operations adjacent to the ARNG facility (not under the control of ARNG) that could potentially be responsible for a PFAS release.

PFAS are classified as emerging environmental contaminants that are garnering increasing regulatory interest due to their potential risks to human health and the environment. PFAS formulations contain highly diverse mixtures of compounds. Thus, the fate of PFAS compounds in the environment varies. The regulatory framework at both federal and state levels continues to evolve. The US Environmental Protection Agency (USEPA) issued Drinking Water Health Advisories for PFOA and PFOS in May 2016, but there are currently no promulgated national standards regulating PFAS in drinking water. In the absence of federal maximum contaminant levels, some states have adopted their own drinking water standards for PFAS. The Oregon Department of Environmental Quality has set Pollutant Initiation Levels (PILs) for PFAS/PFOA, which are not water quality standards (DEQ, 2017). According to OAR 340-045-0100, only facilities that operate under National Pollution Discharge Elimination System and Water Pollution Control Facility permits in Oregon are required to analyze effluent for PFAS/PFOA and report concentrations that exceed the PILs.

This report presents findings of a PA for PFAS at the Portland Air National Guard (PANG) Base Enclave in Portland, Oregon, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Part 300), and USACE requirements and guidance.

This PA documents potential locations where PFAS may have been used, stored, or released into the environment at the PANG Base Enclave. The term PFAS will be used throughout this report to encompass all PFAS chemicals being evaluated, including PFOS and PFOA, which are key components of AFFF.

1.2 Preliminary Assessment Methods

The performance of this PA included the following tasks:

- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a site visit on 14 September 2018
- Interviewed current Oregon ARNG (ORARNG) personnel during the site visit as well as ORARNG environmental managers and operations staff
- Completed visual survey inspections to confirm absence of PFAS-related activities and documented with photographs

1.3 Report Organization

This report has been prepared in accordance with the USEPA *Guidance for Performing Preliminary Assessments under CERCLA* (USEPA, 1991). The report sections and descriptions of each are:

- **Section 1** – **Introduction:** identifies the project purpose and authority and describes the facility location, environmental setting, and methods used to complete the PA
- **Section 2** – **Fire Training Areas:** describes the fire training areas (FTAs) at the facility identified during the site visit
- **Section 3** – **Non-Fire Training Areas:** describes other locations of PFAS releases at the facility identified during the site visit
- **Section 4** – **Emergency Response Areas:** describes areas of AFFF release at the facility, specifically in response to emergency situations
- **Section 5** – **Adjacent Sources:** describes sources of PFAS release adjacent to the facility that are not under the control of ARNG
- **Section 6** – **Conceptual Site Model:** describes the pathways of PFAS transport and receptors for the Areas of Interest (AOIs) and the facility
- **Section 7** –**Conclusions:** summarizes the data findings and presents the conclusions of the PA
- **Section 8** – **References:** provides the references used to develop this document
- **Appendix A** – Data Resources
- **Appendix B** – Preliminary Assessment Documentation
- **Appendix C** – Photographic Log

1.4 Facility Location and Description

The PANG Base Enclave is in the southeastern portion of the Portland International Airport (PDX) in Portland, Oregon in Multnomah County (**Figure 1-1**). The facility is on the northeastern city limits of Portland, on the banks of the Columbia River across from Vancouver, Washington. The city of Portland, Gresham, Oregon City, Scappoose, and Beaverton lie within 10 miles of PANG Base Enclave.

A small military service depot was built in 1940, in an area which is now operated by the Oregon Air National Guard (ORANG). From 1941 until 1945, the facility was designated as Portland Army Air Base. Following World War II, in approximately 1946, a large portion of the property was converted to operation as an Air National Guard Base, and still maintains that status at present time (OTC, 1996). In 1949, the ARNG was granted a license from the ANG, with permission from the Port of Portland, to construct, maintain, and operate several buildings including an aviation hangar. The ARNG lease was renewed in 1960 and in 1961, a deed was granted by the Port of Portland to the National Guard for construction of an armory, now known as Jackson Armory.

The PANG Base is constructed on approximately 245 acres of land leased from the Port of Portland, a small portion of which the PANG Base Enclave, including Jackson Armory, is a tenant. The current lease agreement between the ANG and ARNG expires in 2029 (ERM, 2003). See **Appendix A** for real estate documents.

1.5 Facility Environmental Setting

PANG Base Enclave is in the floodplain of the Columbia River on a topographic boundary known as the Columbia Plateau in the eastern portion of the Portland Basin. The city of Portland sits on the confluence of the Willamette and Columbia Rivers and is bounded to the north-northeast by the Columbia River, to the west by the Coast Ranges and the Willamette River, and to the east by the Cascade Range (O'Connor et. al, 2001). The elevation of the facility is 30 to 45 feet above mean sea level. The terrain around the PANG Base Enclave has little to no natural topography and gently slopes north toward the Columbia River.

1.5.1 Geology

Multnomah County and Portland, Oregon are located in the northern edge of the Willamette Valley physiographic province, on a topographic boundary known as the Columbia Plateau. The Willamette Valley is a drainage basin that is roughly 170 miles long from north to south and encompasses nearly 12,000 square miles. The Willamette River Basin can be further divided into three parts: (1) The Oregon Coast Range, (2) the Puget Trough section (which includes 25% of the Valley, including the Columbia Plateau), and (3) the Middle Cascade Mountains lowlands section (Trimble, 1963).

The Columbia Plateau is punctuated by several small buttes and the Boring Hills, a complex system where small Eocene volcanic cones mix with blocks uplifted by faulting. Late Miocene fluvial deposits from the Cascade Mountain Range also mark the region (Madin, 2009; Leidos, 2018). PANG Base Enclave is situated on quaternary age alluvium comprised of floodplain and terraced bedded sands, silts, and clays roughly 50 to 200 feet in thickness (O'Connor et. al, 2001). Lacustrine deposits of late Pleistocene age form an extensive fill in parts of the floodplain to the south of the facility, emplaced by flood waters from the sudden release of glacial Lake Missoula (O'Connor et. al, 2001). Artificial fill can also be found in localized areas to the north of, under, and directly east and west of PANG Base Enclave.

The alluvium and lacustrine deposits overlie the Troutdale Formation, an early Pliocene formation deposited in structural basins formed by the warping of the Columbia River basalt (Vaccaro, 1990). Under the PANG Base Enclave, the Troutdale Formation is roughly 800 to 900 feet thick and comprised mostly of well-sorted, coarse-grained sandstone and a conglomerate (well-rounded quartzite pebbles set in fine clay matrix) of Columbia River provenance. Localized areas of Troutdale Formation to the southeast of the Cascade Range also comprise fine-to-coarse grained fluvial sediments of Cascade Range provenance (Trimble, 1963; Leidos, 2018).

1.5.2 Hydrogeology

PANG Base Enclave is situated in an area that overlies significant hydrogeologic units, several of which are part of a regional aquifer system that serves as the city of Portland's supplemental water supply (Leidos, 2018). These hydrogeological units include (ascending order) the Sand and Gravel Aquifer, Confining Unit 1, Troutdale Sandstone Aquifer, Confining Unit 2, Troutdale Gravel Aquifer, Columbia River Sand Aquifer (CRSA), and the Overbank Deposits (Oregon Geo, 2009; Leidos, 2018).

Groundwater at the facility, the surrounding ORANG property, and PDX has been encountered at depths ranging from 2 to 10 feet below ground surface (bgs) within the shallow alluvial terrace deposits. Groundwater flow direction has considerable variation locally and between water-bearing units. It tends to fluctuate seasonally and in response to water level stage in the Columbia River caused by releases of the Bonneville Dam. For example, in the Overbank Deposits flow direction is toward the west and northwest, while measurements from the CRSA suggest flow direction fluctuates between northeast and south (Leidos, 2018). Shallow groundwater is

controlled by surface water features, including ditches, stormwater lines, and the Columbia River. Groundwater elevations beneath the adjacent airport suggest a hydraulic gradient toward the storm sewers (APEX, 2017).

Infiltration from snowmelt and precipitation are the main sources of recharge for the shallow aquifers (USGS, 1964). The majority of recharge to the aquifers occurs in the winter months, where precipitation and snowmelt are high, and evapotranspiration is low. The summer months are characterized by low precipitation, high runoff due to urbanization, and high evapotranspiration (USGS, 1998). This can be seen in the aquifers, with the highest water table in the winter and lowest water table in the summer and fall. Multiple drainage ditches throughout PDX as well as the Columbia Slough to the south also have an influence on water levels in the shallow zone.

Wells around PDX are approximately 17 feet bgs in the shallow unconfined aquifer. Groundwater in the unconfined aquifer is not a potable source for water (APEX, 2017). Depth to groundwater in these wells ranged from 2.51 to 10.65 feet bgs. Drinking water at the PANG Base Enclave is provided by the City of Portland, which has two main drinking water sources: the Bull Run Watershed and the Columbia South Shore Well Field (**Figure 1-2**). A quarter of Oregon's population relies on the Bull Run Watershed for clean drinking water, a protected surface water supply located within Mt. Hoot National Forest, 26 miles southeast of Portland (Portland Water Bureau, 2018).

The remainder of drinking water for the City of Portland comes from the Columbia South Shore Well Field, comprised of 26 active wells located in three different aquifers less than one mile from the PANG Base Enclave. This well field is the second largest drinking water source in the state of Oregon and can produce 95 million gallons of water per day. When the Bull Run system is undergoing routine maintenance, during high turbidity events, emergencies, or when Portland needs an additional summer water supply, this well field is utilized to supply drinking water to the City of Portland (Portland Water Bureau, 2018).

1.5.3 Hydrology

PANG Base Enclave is a part of the Columbia Slough watershed, which is part of the much larger Columbia River Basin watershed. Although there are natural and significant water bodies and both navigable and non-navigable waterways at and adjacent to PANG Base Enclave, surface water flow eventually drains to the Columbia Slough, roughly 0.5 miles directly south of the facility (USGS, 1998; PANG, 2018). The Columbia Slough has nearly 18 miles of drainage within the southern floodplain of the Columbia River and receives water from springs to the northeast of PDX, local groundwater seepage from shallow saturated zone, as well as local surface runoff from PANG Base Enclave.

PANG Base has a man-made surface drainage system that dictates surface water flow in and around the base. Drainage ditches throughout the property, consisting of a main branch and a north branch and occupying roughly 1.8 acres, capture stormwater which is then directed to two man-made stormwater detention ponds located to the southwest of PANG Base. The main branch is approximately 2,800 feet long, while the north branch is roughly 1,700 feet long. They converge at a point of discharge to the detention ponds (PANG, 2018). Stormwater is discharged from these two detention ponds to the Columbia Slough (**Figure 1-3**).

1.5.4 Climate

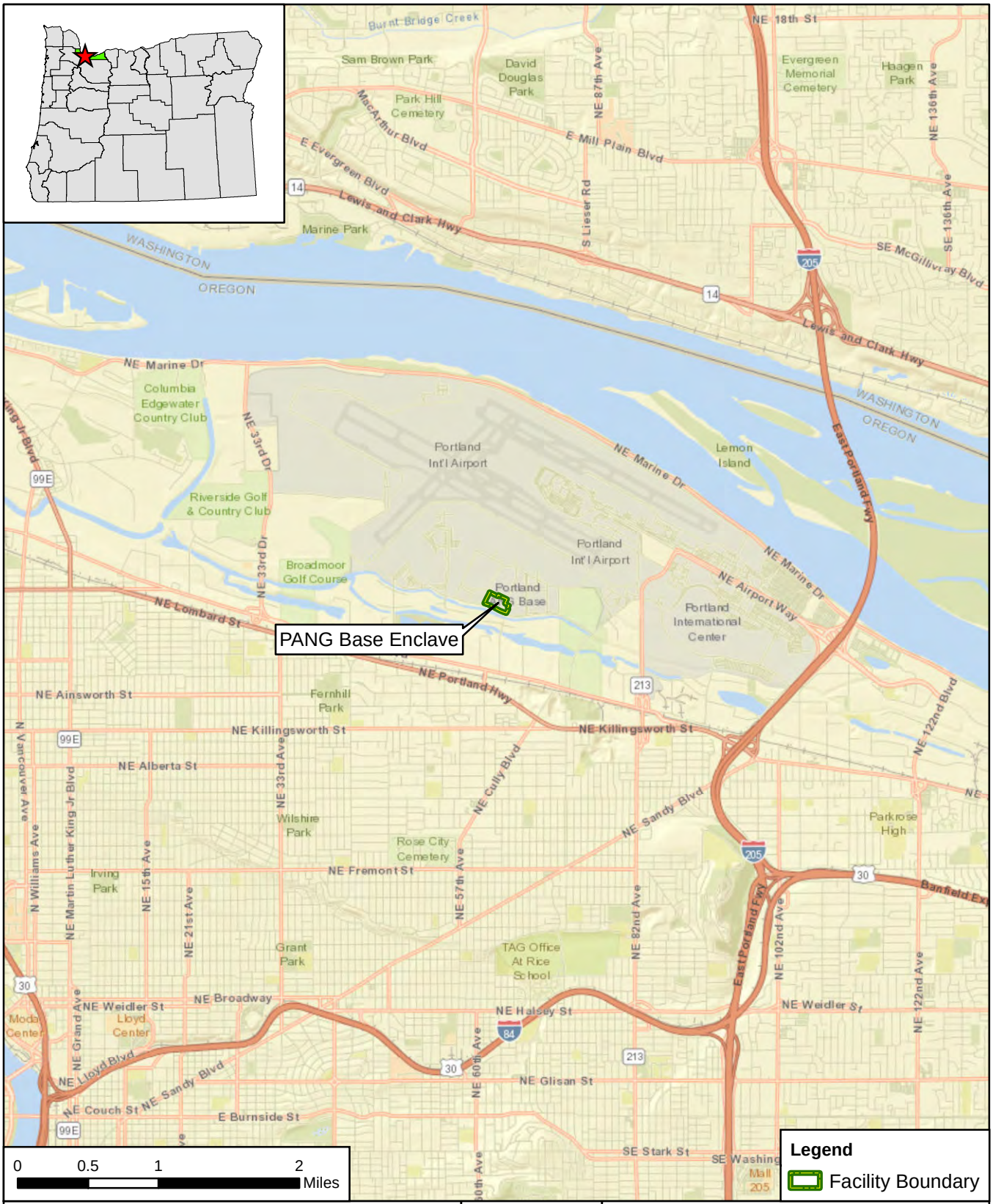
PANG Base Enclave is situated in the northern edge of the Willamette Valley physiographic province, in a topographic boundary called the Columbia Plateau. The region extends northward into Washington State and is bound by the Coast Ranges to the west, the Cascade Range to the east, and the Columbia River to the northeast. The facility is in a temperate climate region with

mild winters and summers. The area is subject to low-volume, high-frequency rainfall events in the early spring and fall. The average annual temperature of Multnomah County is 53.6°F. Air temperatures in January and July average 38°-50° Fahrenheit (F) and 53°-77°F, respectively (NOAA, 2017).

Rainfall in the portion of the Willamette Valley physiographic province in which the facility is located averages approximately 45.59 inches per year, with nearly 105 days of 0.1 in of rain/precipitation or more. The average annual snowfall for the area is around 2.80 in, with most precipitation being rain during the winter months (NOAA, 2017). The average annual wind speed is 14.86 miles per hour and is usually out of the west and northwest (NOAA, 2017).

1.5.5 Current and Future Land Use

PANG Base Enclave was previously designated as an Air National Guard air base until transfer to ARNG. The facility is used primarily for storage of supplies, vehicles, and ammunition. No formal trainings occur at this facility and there have been no previous fire training areas or emergency response incidents at this facility since ORARNG came under control. The current lease agreement is set to expire in 2029; future land use is not anticipated to change during this time.



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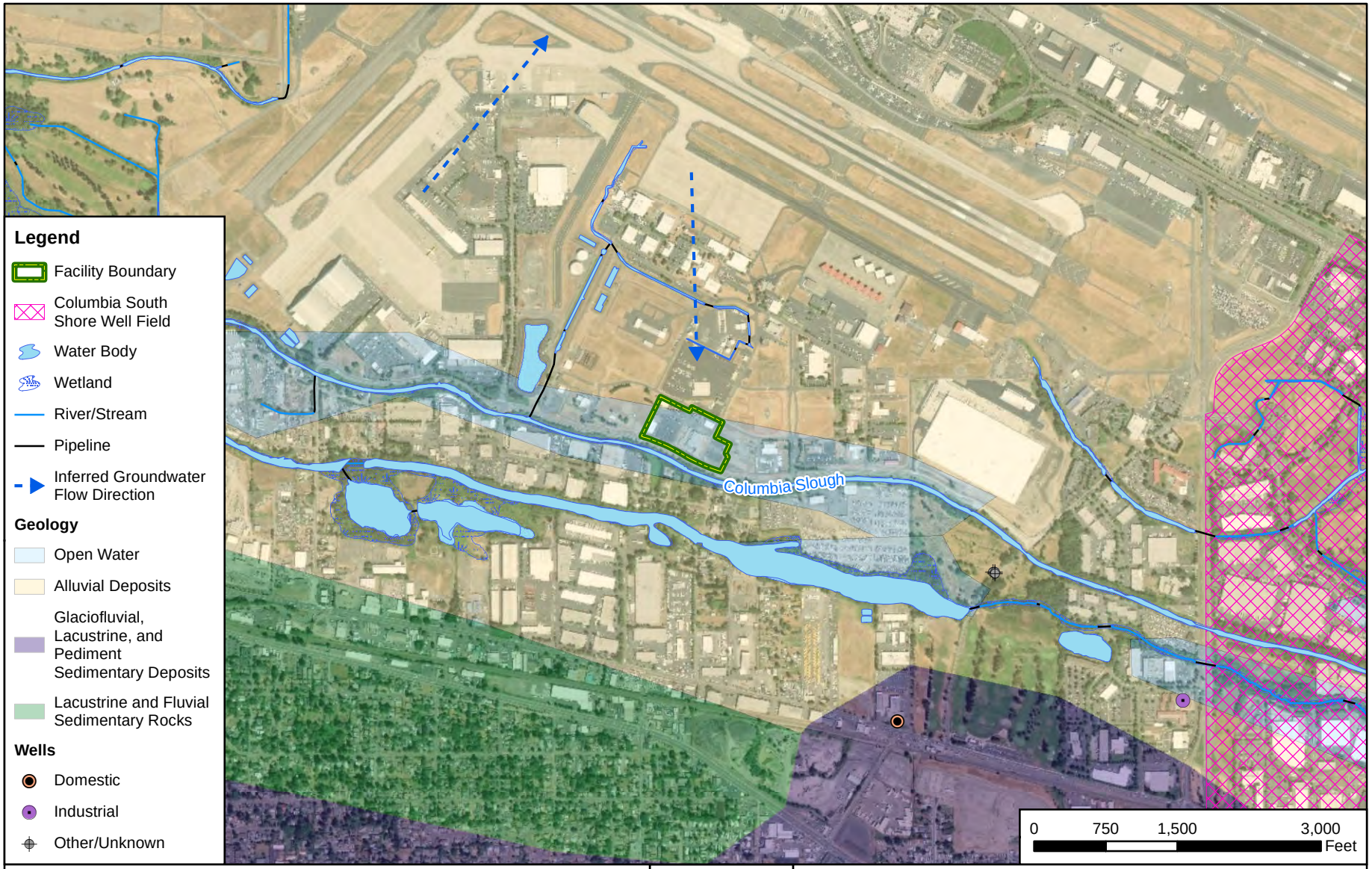

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	4/17/2019

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TITLE

Groundwater Features

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Figure 1-2

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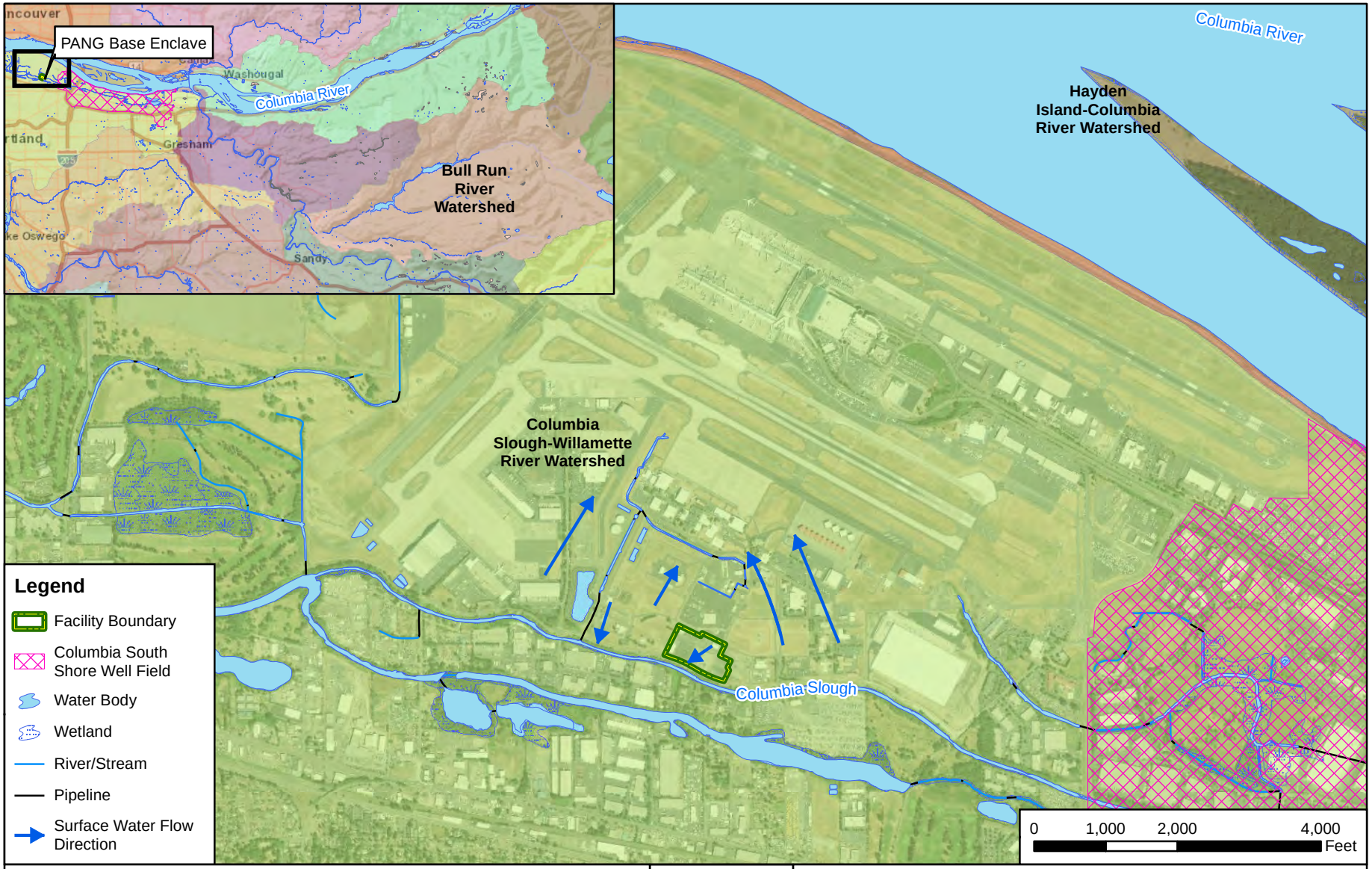

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Base Map: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, ©		PM	RG	4/17/2019

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Surface Water Features

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Figure 1-3

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2. Fire Training Areas

No FTAs were identified within the PANG Base Enclave during the PA through interviews (**Appendix B**), historical document review, or Environmental Data Resource Reports. PANG Base Enclave facility personnel currently conduct any firefighting training activities at either Camp Adair in Corvallis or Camp Rilea near Warrenton, Oregon.

3. Non-Fire Training Areas

No non-FTAs were identified at PANG Base Enclave. During the PA, interviewees indicated that AFFF was not used, stored and/or released at the facility (**Appendix B**). Additionally, no fire suppression systems are present within any facility building.

4. Emergency Response Areas

No emergency response areas or incidents were identified within the PANG Base Enclave during the PA through interviews (**Appendix B**), historical document review, or Environmental Data Resource Reports. The City of Portland or Portland International Airport responses to all emergency incidents involving structural fires.

5. Adjacent Off-Facility Sources

Several potential off-facility sources of PFAS adjacent to the PANG Base Enclave, not under the control of the ARNG, were identified during the PA. Based on interviews with ORARNG personnel (**Appendix B**) and historical document review, all identified adjacent areas with potential AFFF releases are within the PANG Base boundaries. Descriptions of the adjacent sources are presented below and are shown on **Figure 5-1**.

5.1 Air National Guard Property

According to a PA conducted by engineering firm BB&E in 2016 and Apex in 2017, several potential areas of potential use, storage, or release of AFFF have historically occurred the PANG Base (BB&E, 2016). These locations are described below.

- Base Supply (Building 170): During the PA, twenty-seven 55-gallon drums of AFFF were located within the building, with historic storage occurring at the building since at least 2006. No spills or releases have been reported from these drums.
- New Fire Department (Building 180): Several firetrucks containing various quantities of AFFF, totaling approximately 550 gallons, as well as a 2,000-gallon foam trailer, are located within Building 170. Minor spills were reported to have occurred during filling of these vehicles over the years. Additionally, at least three documented occurrences of AFFF being discharged to the stormwater sewer occurred at this location.
- Hangar 250: This building contains a 200-gallon tank for fire suppression equipment; however, during the PA only 55 gallons were present in the tank. The fire suppression system is no longer present in the hangar; however, minor spills were reported from this system in the tank storage room prior to the removal of the system. One empty 55-gallon barrel was still present in the Hangar during the PA.
- Hangar 255: A 600-gallon AFFF fire suppression system is located within the mechanical room of this hangar, with known minor leaks occurring into the main hangar. Approximately one-half gallon of concentrated AFFF was released in 2005 as part of a fire suppression system test, with all residual flowing onto the asphalt and then rinsed down the storm drain outside the hangar. Several days after the test, the stormwater ditch that collects residual from the storm drain showed evidence of foam.
- Old Fire Department (Building 290) and Swale: Historic storage of AFFF-capable fire and crash response vehicles occurred at this building from approximately 1986 to 2005. Fire department personnel indicated minor spills occurred during filling of the AFFF tanks on the vehicles and minor leaks occurred from the equipment. Additionally, an undocumented spill historically occurred that discharged an unknown quantity of AFFF into the drainage swale northwest of the building.
- Hangar 310: This building has AFFF fire suppression equipment stored in the mechanical room of this hangar. It is estimated that two 800-gallon tanks and one 600-gallon tank are stored in this room, with minor spills historically occurring which then release into the main hangar. It is presumed that unintended spills from these tanks were hosed off into the hangar floor drains which connect to the sanitary sewer. It is likely some AFFF flowed onto the ramp just north of this hangar, which is connected to the storm water system.
- Hangar 380: Historically, AFFF fire suppression equipment was stored in the mechanical room of this hangar; however, all tanks were removed in 2005. While there are no known leaks or spills from these tanks, given the prior releases of AFFF tanks in other on-site hangars, there is the potential for unintended spills or releases to have occurred from these tanks.

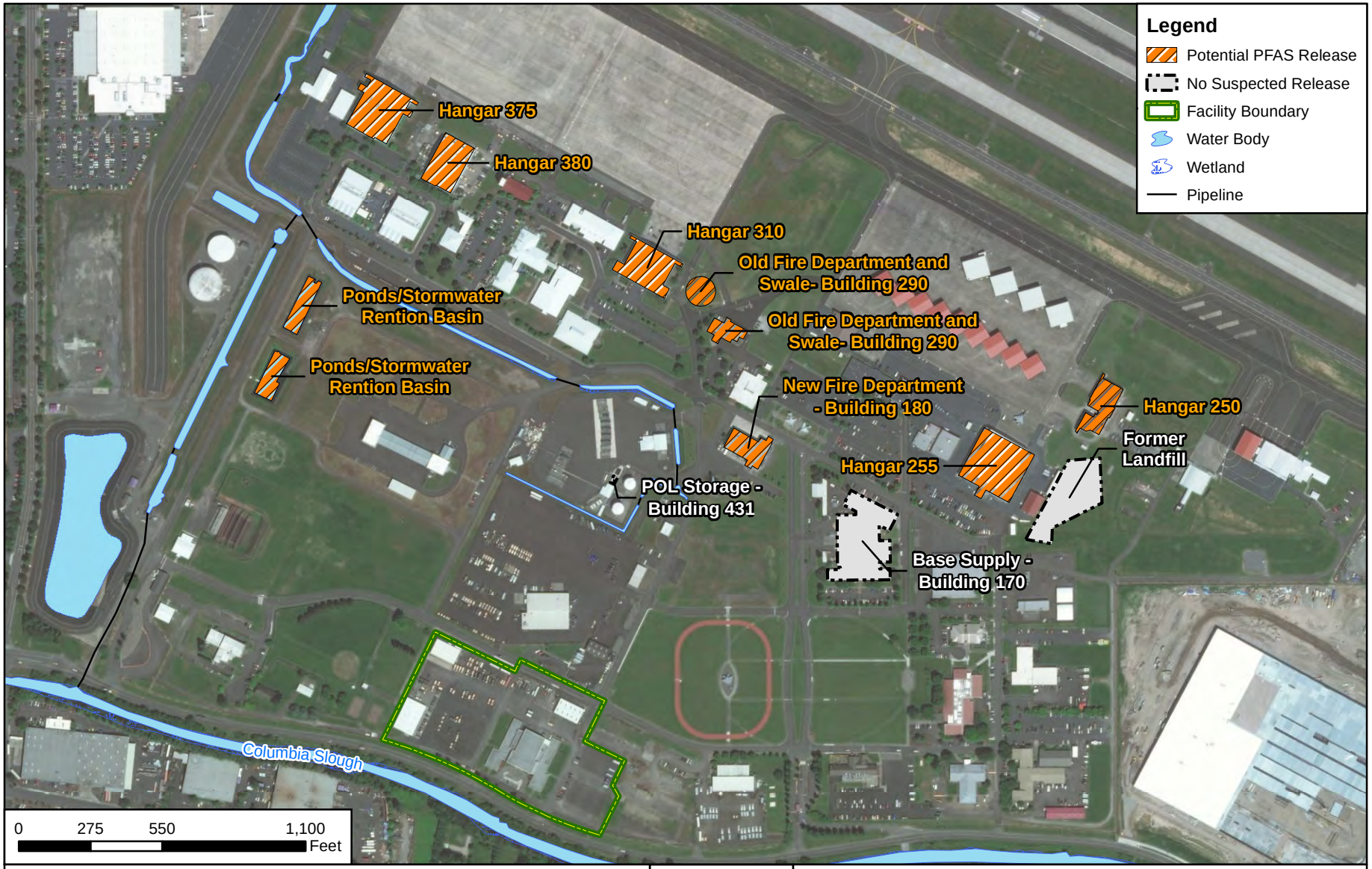
- Hangar 375: There is currently AFFF fire suppression equipment stored within the mechanical room of this hangar. It is estimated that two 800-gallon tanks and one 600-gallon tank are stored in this room, with minor spills historically occurring which then release into the main hangar. It is presumed that unintended spills from these tanks were hosed off into the hangar floor drains which connect to the sanitary sewer. It is likely some AFFF flowed onto the ramp just north of this hangar, which is connected to the storm water system.
- POL Storage (Building 431): Historically, this building contained an AFFF fire suppression system for the fuel tanks located within this building. No spills, leaks, or releases were reported from the AFFF system during its installation and the fire suppression system was removed in 2013.
- Ponds/Stormwater Retention Basins: Two man-made ponds are located on the west-central portion of the base, collectively receiving approximately 95% of PANG Bases' stormwater discharge. Any actual or potential releases mentioned above that discharged into the base stormwater sewer system likely flowed into these two ponds.

Based on the proximity of these locations to ORARNG property as well as fluctuation in groundwater flow direction, there is the potential for AFFF releases from ORANG property to impact the PANG Base Enclave. Surface water flow is directed by a man-made surface drainage system that encompasses the entire PANG Base and the Enclave, and generally discharges to the north towards the Columbia River.

5.2 Landfills

An abandoned, buried landfill is located on property previously leased to the ORANG by the Port of Portland until 1986. This landfill covers approximately one acre of land and is located east of Hangar 255, described above in **Section 5.1**. This landfill was used by both ANG and the ARNG from 1949 until 1956, and consist mostly of old paint cans, oil residue, batteries, paper waste, and broken equipment parts (OTC, 1996).

Landfills are not usually a primary release area of PFAS, but materials disposed in landfills may create a secondary source of contamination. Such materials may include used AFFF storage containers or products associated with waterproofing uniforms or boots. Given the timeframe of use for this landfill preceded manufacturing of AFFF, it is unlikely any PFAS containing materials were disposed of in this landfill.



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SCALE	1:6,600	CHK BY	TK	4/17/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	4/17/2019

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TITLE

Adjacent Sources

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Figure 5-1

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6. Conceptual Site Model

Based on the PA findings from interviews with facility personnel, on-facility observations, review of Environmental Data Resource reports, and online research, no release areas were identified as AOIs at the PANG Base Enclave. A conceptual site model (CSM) identifies three components necessary for potentially complete exposure pathways related to a site: (1) source, (2) pathway, and (3) receptor. If any of these elements are missing, the pathway is considered incomplete. However, since no PFAS sources were identified to originate at the PANG Base Enclave or from activities associated with the facility, CSMs were not developed.

Nearby off-facility sources were identified during this PA. According to an EDR Radius Map™ Report run in 2015 of the adjacent Air National Guard Base, there are 153 water wells within a one-mile radius of the Base, none of which were listed as potable wells (BB&E, 2016). However, a well field used as a supplemental water supply for the City of Portland is located 0.75 miles southeast of the facility (BB&E, 2016). Based on actual and potential AFFF releases at the nearby ORANG facility as well as fluctuating groundwater and surface water flow directions, there is the potential for adjacent AFFF releases to impact groundwater and surface water at the PANG Base Enclave.

7. Conclusions

This report presents a summary of available information gathered during the PA on the potential use, storage, or release of AFFF and other PFAS-related activities at PANG Base Enclave. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

Based on information obtained during interviews conducted with facility personnel, facility observations, and reviewed documentation, it is confirmed that AFFF has never been stored, used, or released at the PANG Base Enclave; therefore, no AOIs related to PFAS releases were identified.

Interviewee knowledge from ORARNG personnel at PANG Base Enclave dates back to at least 2004. Evidence obtained during the PA supports that current or former ARNG facility activities have not contributed to any potential PFAS contamination in soil, groundwater, surface water, or sediment. No potential areas of PFAS use, release, or storage, current or historical, were identified at the PANG Base Enclave.

However, there are several potential PFAS sources adjacent to the facility (**Figure 7-1**). Based on fluctuating water flow patterns and the close proximity of groundwater wells and a well field, the reported releases within ORANG property (**Section 5.1**) have the potential to impact groundwater and surface water at the PANG Base Enclave.

7.2 Uncertainties

A number of information sources were investigated during this PA to determine the potential for PFAS-containing materials to have been stored, used, or released at the facility. Historically, documentation of PFAS use was not required because PFAS were considered benign. Therefore, records were not typically kept by the facility or available during the PA on the disposition and use of PFAS in training, firefighting, or other non-traditional activities.

The conclusions of this PA are predominantly based on the information provided during interviews with personnel who had direct knowledge of PFAS use at the facility. Sometimes the provided information was vague or conflicted with other sources. Gathered information has a degree of uncertainty due to the absence of written documentation, the limited number of personnel with direct knowledge due to staffing changes, the time passed since PFAS was first used (1969 to present), and a reliance on personal recollection. Inaccuracies may arise in potential PFAS release locations, dates of release, volume of releases, and the concentration of AFFF used. There is also a possibility the PA has missed a source of PFAS, as the science of how PFAS may enter the environment continually evolves.

In order to minimize the level of uncertainty, readily available data regarding the use and storage of PFAS were reviewed, current personnel were interviewed, multiple persons were interviewed for the same potential source area, and potential source areas were visually inspected. The uncertainties associated with the PA are summarized in **Table 7-1**.

Table 7-1: Uncertainties

Area	Source of Uncertainty
PANG Base Enclave	Direct interviewee knowledge is not available before 2004. Whether potential use, storage, or release of PFAS-containing materials occurred at this facility prior to 2004 is unknown. Function and use of the facility relating to military operations has not changed since the facility was constructed in the 1940s.

7.3 Potential Future Actions

Based on the documented absence (2004-present) of the use, storage, or release of PFAS-containing materials at PANG Base Enclave, no AOIs were identified during the PA. Evidence does not indicate that current or former ARNG activities contributed PFAS contamination to soil, groundwater, surface water, or sediment at the facility or adjacent areas. PANG Base Enclave will not move forward in the CERCLA process.

CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at PANG Base Enclave, OR			
REVISED	4/17/2019	GIS BY	MS	4/17/2019
SCALE	1:4,800	CHK BY	TK	4/17/2019
Base Map: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, ©		PM	RG	4/17/2019

Legend

- Potential PFAS Release
- No Suspected Release
- Facility Boundary
- Columbia South Shore Well Field
- Water Body
- Wetland
- Pipeline

N

Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 7-1

Q:\Projects\ENV\GEARS\GEO\ARNG PFAS\900-CAD-GIS\920-GIS or Graphics\MXD\OR\PANG_Base_Enclave_Figures\PANG_Base_Enclave_PA_Figures\Fig_7-1_PANG_Base_Summary.mxd

8. References

Apex. 2017. *Original and Former Fire Training Facilities Investigation Results Report Portland International Airport Portland, Oregon.* Prepared for Port of Portland. December 2017.

BB&E, Inc. 2016. *Final Perfluorinated Compounds Preliminary Assessment Site Visit Report Portland Air National Guard Portland, Oregon, Revision 1.* Prepared for Headquarters Air National Guard. April 2016.

Environmental Resources Management (ERM). 2003. *Environmental Restoration Program: 142nd Fighter Wing Portland Air National Guard Base Portland International Airport Portland, Oregon.* Prepared for the Air National Guard. January 2003.

Hazardous Materials Technical Center (HMTC). 1987. *Installation Restoration Program Phase I – Records Search for Portland International Airport (ANG) Portland, Oregon and North Ben Air National Guard Station North Bend, Oregon.* For the Air National Guard Support Center. September 1987.

Leidos. 2018. *Work Plan for Fiscal Year 2017 Phase III Regional Site Inspection for Perfluorooctanesulfonate and Perfluorooctanoic Acid at Portland Air National Guard Base Portland, Oregon.* Prepared for Air National Guard Restoration Branch. April 2018.

Madin, I. *Portland, Oregon, Geology by Tram, Train, and Foot.* Prepared for the Oregon Department of Geology and Mineral Industries. Volume 69, Number 1, Fall 2009.

NOAA. 2017. *Local Climate Data from Portland Airport.* Retrieved October 2018, from https://www.wrh.noaa.gov/pqr/pdxclimate/index.php

Operational Technologies Corporation (OTC). 1996. *Installation Restoration Program Remedial Investigation Work Plan 142nd Fight Group Oregon Air National Guard Portland International Airport Portland, Oregon.* Prepared for HQ ANG/CEVR Andres AFB, Maryland. April 1996.

O'Connor, J.E., Sarna-Wojcick, A., Woznikak, K.C., Polette, D.J., Fleck, R.J. 2001. *Origin, Extent, and Thickness of Quaternary Geologic Units in the Willamette Valley, Oregon*. Prepared for U.S. Geological Survey, Professional Paper 1620, 51 p.

Portland Water Bureau. 2018. *2018 Drinking Water Quality Report.*

Trimble, D. 1963. *Geology of Portland, Oregon and Adjacent Areas*. Prepared for the U.S. Geological Survey, Bulletin 1119.

United States Environmental Protection Agency (USEPA). 1991. *Guidance for Performing Preliminary Assessments under CERCLA.* September.

United States Air Force (USAF). 2010. *142 FW History.* Retrieved December 2018, from <https://www.142fw.ang.af.mil/Resources/Fact-Sheets/Display/Article/438160/142-fw-history/?. October 2010.

Varraro, JJ. 1999. *Summary of the Columbia Platuea Regional Aquifer-System Analysis, Washington, Oregon, and Idaho.* Prepared for U.S. Geological Survey, Professional Paper 1413-A.

Appendix A
Data Resources

Data Resources will be provided separately on CD. Data Resources for PANG Base Enclave include:

PANG Base Enclave Leases, Licenses, and Permits

- 1961 Deed between the Port of Portland and the State of Oregon for the Construction, Maintenance, and Operation of a National Guard Armory

Previous Investigations Completed at the PANG Base Enclave

- 1987 Installation Restoration Program Phase I – Records Search for Portland International Airport (ANG) Portland, Oregon and North Ben Air National Guard Station North Bend, Oregon
- 1996 Installation Restoration Program Remedial Investigation Work Plan 142nd Fight Group Oregon Air National Guard Portland International Airport Portland, Oregon
- 2001 Installation Restoration Program Final Feasibility Study 142nd Fighter Wing Portland Air National Guard Base Portland International Airport Portland, Oregon
- 2016 Final Perfluorinated Compounds Preliminary Assessment Site Visit Report Portland Air National Guard Portland, Oregon, Revision 1
- 2017 Original and Former Fire Training Facilities Investigation Results Report Portland International Airport Portland, Oregon
- 2018 Work Plan for Fiscal Year 2017 Phase III Regional Site Inspection for Perfluorooctanesulfonate and Perfluorooctanoic Acid at Portland Air National Guard Base Portland, Oregon

PANG Base Enclave Installation Maps

- 2018 Facility Maps

PANG Base Enclave EDR Report

- 2018 PANG Base Enclave Environmental Data Resource Report

D E E D

BOOK 2067 PAGE 133

THIS INDENTURE made this 15th day of June, 1961, between THE PORT OF PORTLAND, a municipal corporation of the State of Oregon, grantor, and the STATE OF OREGON, grantee, witnesseth:

WHEREAS, the grantor is the owner of the hereinafter described property located in Sections 17 and 18, Township 1 North, Range 2 East, Willamette Meridian, Multnomah County, Oregon, and

WHEREAS, the grantee desires to acquire said property for use and to continue to be used for a public purpose, namely that of constructing, maintaining and operating an Oregon National Guard Armory thereon, and

WHEREAS, pursuant to ORS 271.330 (1) the grantor has determined that the hereinafter described property is not needed for its public use; now, therefore, this indenture

W I T N E S S E T H

That THE PORT OF PORTLAND, a municipal corporation of the State of Oregon, in consideration of the premises and of the sum of One Dollar ($1.00) has granted, bargained, sold and conveyed and by these presents does grant, bargain, sell and convey unto the STATE OF OREGON on condition that it is used forever as a site for the construction, maintenance and operation of an Oregon National Guard Armory all of the right, title and interest of THE PORT OF PORTLAND in and to the following described real property situated in Sections 17 and 18, Township 1 North, Range 2 East of the Willamette Meridian, Multnomah County, Oregon bounded and described as follows, to wit:

Commencing at a point that bears South 272.91 feet and East 1052.55 feet from the northeast corner of the Wm. Hall D.L.C., and running thence South 2423.35 feet to a point which is 45 feet North from the center line of Northeast Cornfoot

Road; thence along a line parallel to and 45 feet northerly from the center line of said Cornfoot Road, as follows: Along the arc of a curve to the left with a radius of 1228.30 feet (Tangent bearing S 89° 53' E) a distance of 199.75 feet to a point; thence North 80° 30' East 248.29 feet to a point; thence around the arc of a curve to the right with a radius of 545.00 feet a distance of 506.99 feet to a point; thence South 46° 12' East a distance of 95.36 feet to a point; thence around the arc of a curve to the left with a radius of 355.00 feet a distance of 233.07 feet to a point; thence South 82° 49' East a distance of 176.80 feet to a point; thence around the arc of a curve to the right with a radius of 645.00 feet a distance of 164.05 feet to a point; thence South 68° 18' East a distance of 328.50 feet to a point; thence South 76° 08' East a distance of 289.58 feet to a point; thence South 82° 05' East a distance of 301.29 feet to a point; thence around the arc of a curve to the right with a radius of 1845.00 feet a distance of 613.09 feet to the true place of beginning; running thence North 26° 19' East a distance of 483.62 feet along the westerly side of "G" Street to a point; thence South 63° 41' East a distance of 358.00 feet along the northerly side of 3rd Street to a point; thence South 26° 19' West a distance of 497.32 feet along the easterly side of "H" Street to a point, said point being 45 feet northeasterly from the center line of Northeast Cornfoot Road; thence northwesterly along the arc of a curve to the right with a radius of 1592.10 feet a distance of 204.96 feet to a point; thence North 58° 38' West a distance of 11.06 feet to a point; thence around the arc of a curve to the left with a radius of 1845 feet a distance of 143.63 feet to the true place of beginning; containing 4.03 acres more or less,

subject, however, to the following exceptions, reservations, and conditions:

1. There is hereby reserved to the grantor, its successors and assigns, for the use and benefit of the public, a right of flight for the passage of aircraft in the air space above the surface of the premises herein conveyed, together with the right to cause in said air space such noise as may be inherent in the operation of aircraft, now known or hereafter used for navigation of or flight in the air, using said air space or landing at, taking off from or operating on Portland International Airport.

2. The grantee by accepting this conveyance expressly agrees that it will not erect nor permit the erection of any structure or object nor par-

mit the growth of any tree on the land conveyed hereunder above a mean sea level elevation of 93 feet. In the event the aforesaid covenant is breached the grantor reserves the right to enter on the land conveyed hereunder and to remove the offending structure or object and to cut the offending tree, all of which shall be at the expense of the grantee.

3. The grantee by accepting this conveyance expressly agrees that it will not make use of the said property in any manner which might interfere with the landing and taking off of aircraft from said Portland International Airport or otherwise constitute an airport hazard. In the event the aforesaid covenant is breached the grantor reserves the right to enter on the land conveyed hereunder and cause the abatement of such interference at the expense of the grantee.

PROVIDED HOWEVER, and it is one of the considerations for this conveyance and an express condition hereof that:

1. In the event said hereinabove described premises shall at any time cease to be used for the public purposes hereinabove set forth, namely the construction, maintenance and operation of an Oregon National Guard Armory, THE PORT OF PORTLAND or its successors may re-enter upon said premises and the title, right of possession and all other rights transferred by this indenture to the STATE OF OREGON shall revert to THE PORT OF PORTLAND. In the event THE PORT OF PORTLAND, acting pursuant to this condition, re-enters upon and regains possession of said premises, the STATE OF OREGON shall have the right to remove or cause to be removed within sixty (60) days following an act of re-entry by THE PORT OF PORTLAND all buildings and improvements placed upon said premises by the STATE OF OREGON.

TO HAVE AND TO HOLD the said granted premises unto the STATE OF OREGON subject to the exceptions, reservations and conditions hereinabove set forth.

IN WITNESS WHEREOF, THE PORT OF PORTLAND, grantor, pursuant to a resolution of its Board of Commissioners, duly and legally adopted, has caused these presents to be signed by its President and Assistant Secretary and its corporate seal to be affixed this 15th day of June 1961.

THE PORT OF PORTLAND

By _____
President

By _____
Assistant Secretary

STATE OF OREGON)
) ss
County of Multnomah)

On this 15th day of June 1961, before me appeared, Erling E. Jacobsen, and John J. Winn, Jr., both to me personally known who being duly sworn, did say that he, the said Erling E. Jacobsen is the President, and he, the said John J. Winn, Jr., is the Assistant Secretary, of the within named The Port of Portland, a municipal corporation, and that the seal to the within instrument is the corporate seal of said municipal corporation, and that the said instrument was signed and sealed in behalf of said municipal corporation by authority of its Board of Commissioners, and the said Erling E. Jacobsen, and John J. Winn, Jr., acknowledged said instrument to be the free act and deed of said municipal corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, this the day and year first in this my certificate written.

_____
Notary Public for Oregon
My Commission Expires: Sept. 9, 1964

DOCUMENT APPROVED

APPROVED BY JUN

ON March 13 1961

- 4 -

(SEAL) DOCUMENT 23613 RECORDED JUN 16 1961 1:32 PM SI COLLIN, County Clerk

INSTALLATION RESTORATION PROGRAM

Phase 1
Records Search

DCN: Portland 2 05125
Title: Phase I Records Search
ARF Final 01 Aug 1987

Portland International Airport (ANG)
Portland, Oregon
and
North Bend Air National Guard Station
North Bend, Oregon

Hazardous Materials Technical Center
August 1987

This report has been prepared for the National Guard Bureau, Washington, DC, by the Hazardous Materials Technical Center for the purpose of aiding in the implementation of the Air Force Installation Restoration Program.

DISTRIBUTION: Approved for public release; distribution is unlimited.

INSTALLATION RESTORATION PROGRAM
PHASE I - RECORDS SEARCH FOR

PORTLAND INTERNATIONAL AIRPORT (ANG)
PORTLAND, OREGON

AND

NORTH BEND AIR NATIONAL GUARD STATION
NORTH BEND, OREGON

September 1987

Prepared for

Air National Guard Support Center
Andrews Air Force Base, Maryland 20331-6008

Prepared by

The Hazardous Materials Technical Center
The Dynamac Building
11140 Rockville Pike
Rockville, Maryland 20852

Contract No. 900-82-4426

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EXECUTIVE SUMMARY

A. INTRODUCTION

The Hazardous Materials Technical Center (HMTC) was retained in July 1986 to conduct the Installation Restoration Program (IRP) Phase I - Records Search of the 142nd Fighter Interceptor Group (FIG), Portland International Airport (ANG) Portland, Oregon (hereinafter referred to as Portland ANGB) and the 104th Tactical Control Flight (TCF), North Bend Air National Guard Station (North Bend, Oregon (hereinafter referred to as North Bend ANGS), under Contract No. DLA-900-82-C-4426 Records Search. The Records Search included:

- an onsite visit, including interviews with 19 Base employees at the Portland ANGB and North Bend ANGS conducted by HMTC personnel during 7-10 July 1986;
- the acquisition and analysis of pertinent information and records on hazardous materials use and hazardous waste generation and disposal at Portland ANGB and North Bend ANGS;
- the acquisition and analysis of available geologic, hydrologic, meteorologic, and environmental data from pertinent Federal, State and local agencies; and
- the identification of sites which may be potentially contaminated with hazardous waste/hazardous materials (HW/HM) at Portland ANGB and North Bend ANGS.

B. MAJOR FINDINGS

The major operations of the 142nd FIG that have produced hazardous waste include aerospace ground equipment (AGE) maintenance, ground vehicle maintenance, petroleum oil and lubricant (POL) management, and aircraft maintenance. These operations generate varying quantities of waste oils, recovered fuels, spent cleaners, and solvents.

The HW/HM generated by these operations are being disposed of through: the Defense Reutilization and Marketing Office (DRMO) and/or contract disposal for recycling. Previously the Air Force disposed of the waste by burning at the Burn Pit Area.

Interviews with 19 personnel and a field survey resulted in the identification of eight potentially contaminated disposal and/or spill sites at Portland ANGB and seven potentially contaminated sites at the North Bend ANGS. Six of the 15 sites were evaluated and prioritized using the Air Force Hazard Assessment Rating Methodology (HARM) because potential for contaminant migration exists at these sites.

- o Site No. 1 - Central Hazardous Waste Storage Area
- o Site No. 2 - Civil Engineering Hazardous Material Storage Area
- o Site No. 3 - Hush House Area
- o Site No. 4 - Main Drainage Ditch
- o Site No. 5 - AGE Maintenance Shop
- o Site No. 7 - Burn Pit Area

C. CONCLUSIONS

The six HM/HW sites identified as potentially contaminated are Site Nos. 1, 2, 3, 4, 5, and 7. These sites have been further evaluated and given a Hazard Assessment Score (HAS), using the Air Force Hazard Assessment Rating Methodology (HARM).

Site No. 1 - Central Hazardous Waste Storage Area

This storage area was temporarily used for storing 55-gallon drums containing waste oil, solvents, fuels, PD-680, DF-2, shop waste, transformers, and capacitors. During the site visit, discolored gravel and soil were observed; however, no spills have occurred at this site.

Site No. 2 - Civil Engineering Hazardous Material Storage Area

Fifty-five-gallon drums of methyl ethyl ketone are stored in a horizontal position at this site. Although no spills have occurred here, discolored gravel was observed during the site visit.

Site No. 3 - Hush House Area

Discolored soil and grass were noted during the site visit, possibly from effluent from the oil/water separator and holding tank.

Site No. 4 - Main Drainage Ditch

JP-4, AVGAS, diesel fuel, and unknown waste, which have been spilled on runways, aprons, and other paved areas, are channeled to this site. The Base drainage system discharges offbase, but is activated only during precipitation, so spills and releases tend to accumulate in the immediate areas.

Site No. 5 - AGE Maintenance Shop

This site is an area adjacent to Building 1225 where batteries were drained directly onto the soil. Buckets of oil and solvent were also dumped in this area. Discolored soil, gravel, and stressed vegetation were observed during the site visit.

Site No. 7 - Burn Pit Area

This area served as a fire training area where JP-4 and other flammables were ignited. Several thousand gallons per year were used here between 1957 and 1978.

D. RECOMMENDATIONS

Because of the potential for contamination migration at Portland ANGB, initial stages of the Phase II/IVA program are recommended for six of the fifteen potentially contaminated sites. This program should consist of analysis of soil and/or groundwater for priority pollutants, heavy metals, organics, oil and grease, and other hydrocarbons. The primary purposes of investigating the proposed locations are the following:

- To determine whether pollutants are present at each site or determine that no pollutants are present; and
- To determine whether groundwater at each site has been contaminated, and if it has, give quantification with respect to contaminant concentrations, the boundary of the contaminant plume, and the rate of migration.

I. INTRODUCTION

A. Background

The 142nd Fighter Interceptor Group (FIG) is presently located at the Portland International Airport. After World War II, most of the area which is now the Portland ANGB was converted to an Air National Guard Base. It then became an active Air Force Base in 1950; in 1964, it was again converted to an Air National Guard Base and has maintained this status to the present time. The 104th Tactical Control Flight (TCF) is located in North Bend, Oregon and has been active since June 1981. Past and present operations at both Air National Guard locations have involved the use and disposal of hazardous materials. Because of this, the Air National Guard has implemented its Installation Restoration Program (IRP). The IRP is a four-phase program as follows:

Phase I - Records Search (Installation Assessment) to identify and prioritize past disposal sites posing a potential and/or actual hazard to public health or the environment.

Phase II/IVA - Site Characterization/Remedial Action Plan to define and quantify, via field studies, the presence or absence of contamination that may have an adverse impact on public health or the environment, to develop a Remedial Action Plan (RAP), and if directed by Air National Guard Support Center (ANGSC), prepare designs and specifications.

Phase III - Technology Base Development (if needed) to develop new technology for accomplishment of remediation.

Phase IVB - to implement Site Remedial Action.

B. Purpose

The purpose of this IRP Phase I - Records Search (hereafter referred to as Records Search) is to search for, identify, and assess actual or potential contaminant migration at Portland ANGB and North Bend ANGS by reviewing available records and interviewing Base personnel who have a knowledge of present and past operations.

C. Scope

The scope of this Records Search is limited to spills, leaks, or disposal problems occurring on ANGB property of the 142nd FIG, Portland, Oregon, and the 104th TCF, North Bend, Oregon. Thus far, the following actions have been taken:

- o An onsite Portland ANGB and North Bend ANGS visit;
- o The acquisition of pertinent information and records of hazardous materials use and hazardous waste generation and disposal practices at the Portland ANGB and North Bend ANGS;
- o The acquisition of available geologic, hydrologic, meteorologic land use, and critical habitat data from various Federal and State agencies;
- o A review and analysis of all information obtained; and
- o The preparation of a report, to include recommendations for further actions.

The onsite visit took place during 7 - 10 July 1986. The following personnel were assigned to the team and provided input to this report:

- o Mr. Timothy Gardner, Environmental Scientist
- o Ms. Jody Mooney, Environmental Scientist
- o Ms. Natasha Brock, Environmental Scientist (not present for visit)

Resumes of the team members appear in Appendix E.

Individuals from the ANG who assisted in the Records Search were Lt. Col. Michael Washeleski, Bioenvironmental Engineer, ANGSC/SGB, and selected members of the 142nd FIG and the 104th TCF. The point of contact for Portland ANGB and North Bend ANGS was Capt. Alan Malone, Base Civil Engineer.

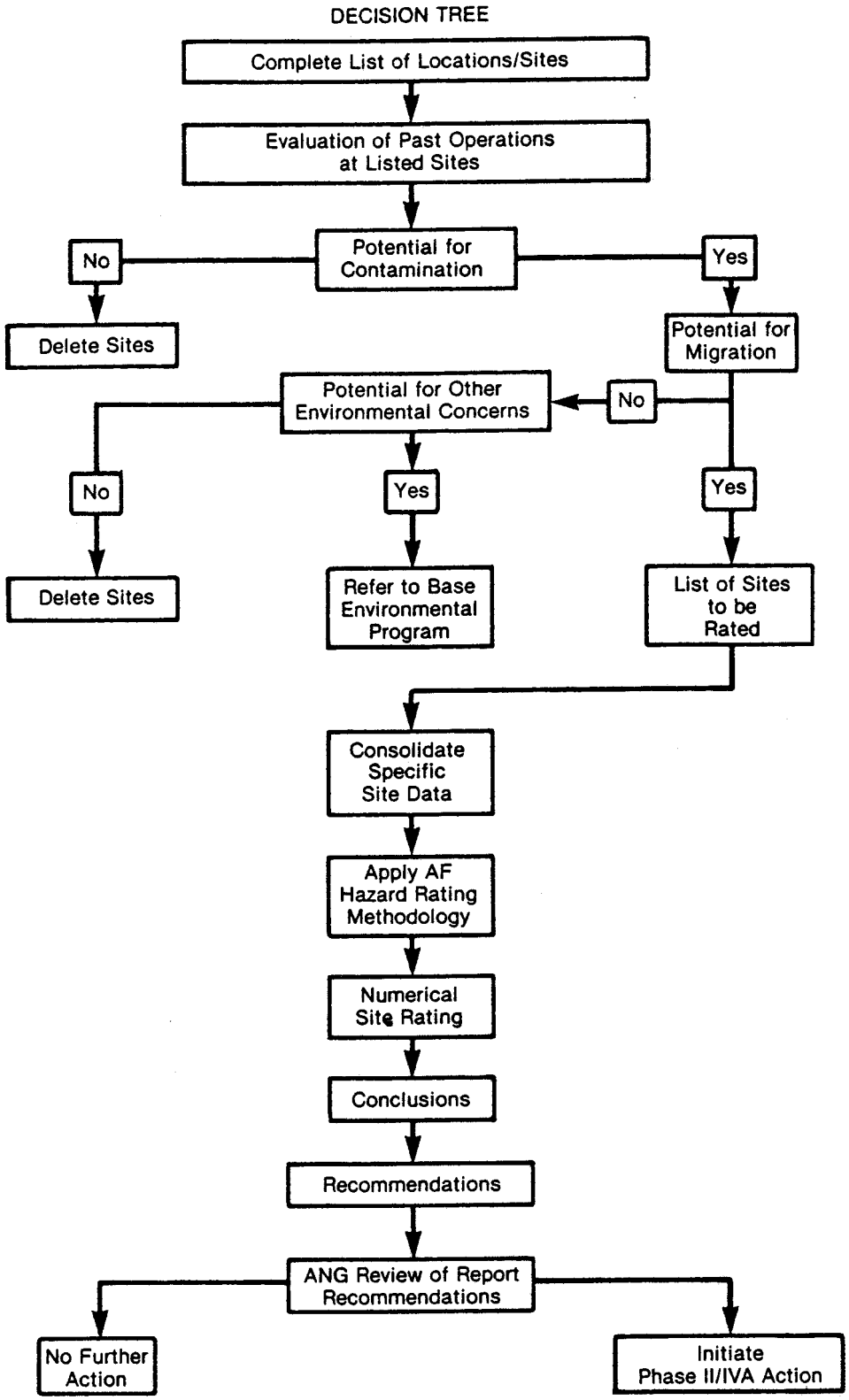
D. Methodology

Figure 1 is a flowchart of Records Search Methodology. HMTC identified eight potentially contaminated locations at Portland ANGB and seven at North Bend ANGS where hazardous materials were used and disposed of.

HMTC evaluated past and present operating procedures at the fifteen identified potentially contaminated hazardous waste disposal/spill sites to determine whether environmental contamination may have occurred. This evaluation was facilitated by extensive interviews with 19 Base employees familiar with the various operating areas of Portland ANGB and North Bend ANGS. Appendix A lists their principal areas of knowledge and their years of experience at the Base and Station.

Blueprints and records of Portland ANGB and North Bend ANGS were reviewed to supplement information obtained from the interviews. In addition, the team toured the identified sites to determine the presence of visible contamination and to assess the potential for contamination migration. Particular attention was given to locating nearby drainage ditches and surface water bodies. After analyzing the necessary environmental information, six of the 15 identified sites were given a Hazard Assessment Score (HAS) using the Air Force Hazardous Assessment Rating Methodology (HARM) because a potential for migration exists (Step 4 of Figure 1).

Figure 1.
Records Search Methodology Flow Chart.



II. INSTALLATION DESCRIPTION

A. Location

The Portland ANGB is located on the south side of the Portland International Airport in Portland, Oregon (see Figure 2). The airport is located northeast of the city, situated between the Columbia River and Columbia Slough.

The North Bend ANGS is located approximately two miles south of Lakeside, Oregon and one and one half miles east of the town Saunders Lake, off State Route 101 (see Figure 2A). The Base is situated in an under-developed area near tributaries of Shutter Creek which feeds into Shutter Arm and Tenmile Lake.

B. Organization and History

Portland ANGB was opened in 1941 to 1945 as an Army Air Base. After World War II, most of the Base was converted to operation as an Air National Guard Base. It became an active Air Force Base in 1950 until 1964, when it once again became an Air National Guard Base and has maintained this status to the present time.

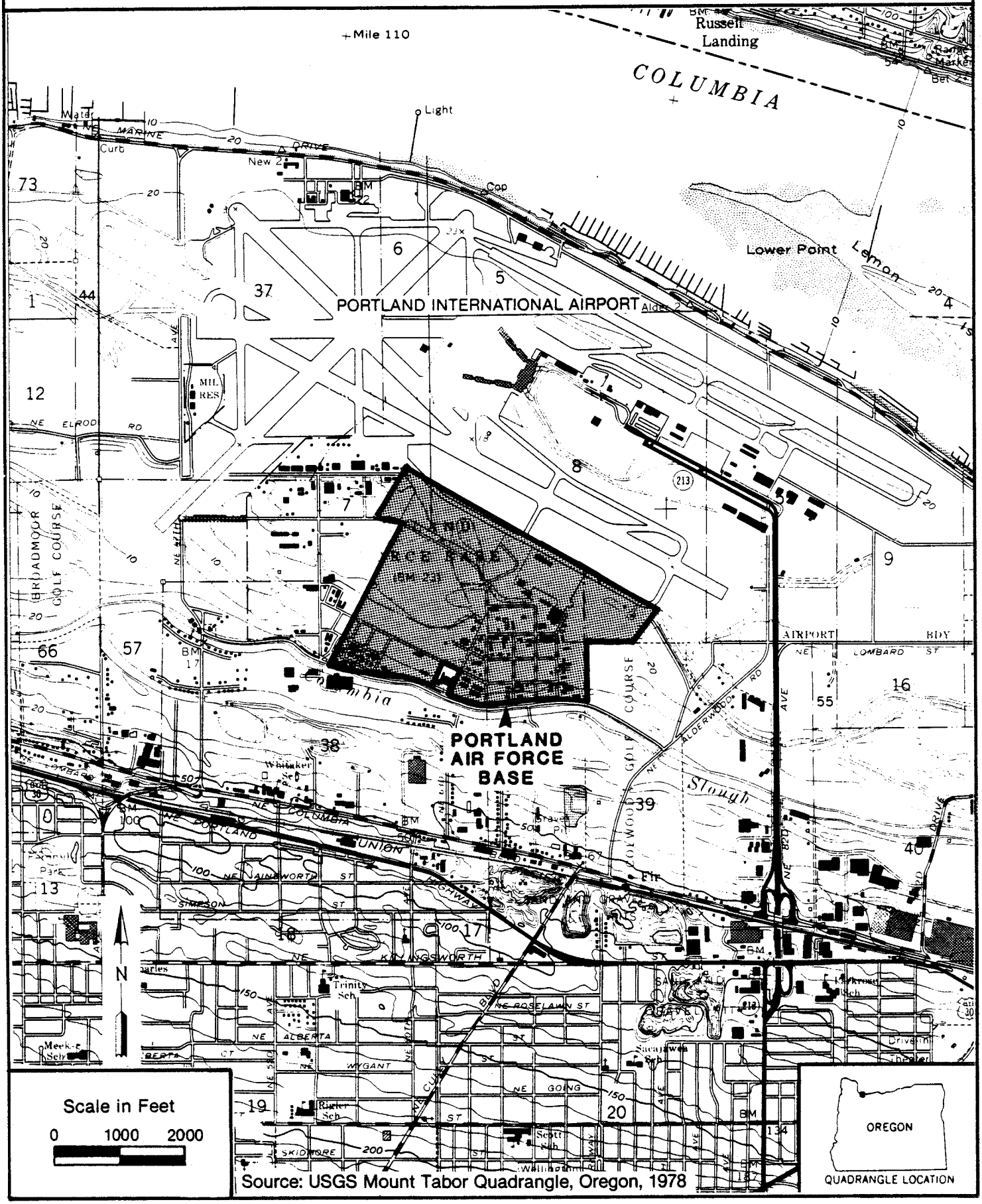
The mission of Portland ANGB is to provide Operational Headquarters and Training facilities for the 142nd Fighter Squadron, which is the Portland ANGB host unit. Several other units, including the 304th ARRS (Res), 40th AeroMed Squadron (Res), 83rd Aerial Port Squadron (Res), and the Oregon Army National Guard, also occupy the Portland ANGB and each has an individual military mission. While some of the units stationed at the Base provide peacetime support functions and services to the Base in general, the purpose of others is strictly related to training and readiness for their military mission.

The mission of North Bend ANGS is to provide a permanent Coastal Defense Radar Facility. The facility was maintained by the Air Force from the 1950s until 1980. The 104th Tactical Control Flight (TCF) received Federal recognition in June 1981 at Kingsley Field in Klamath Falls, Oregon. In June 1981,

HMTC

Figure 2.

Site Map of Portland International Airport (ANGB) Portland, Oregon

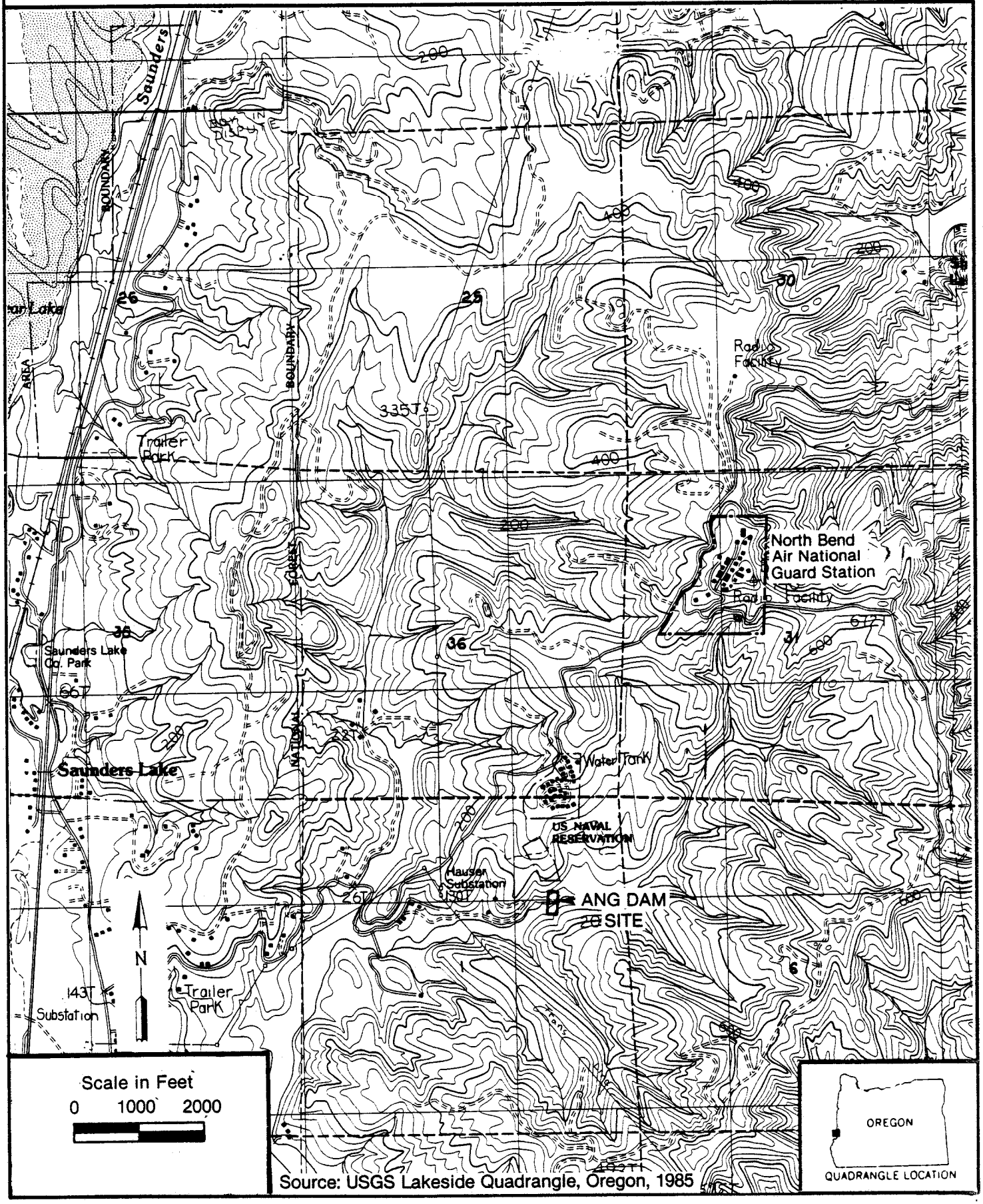


Source: USGS Mount Tabor Quadrangle, Oregon, 1978

HMTC

Figure 2A.

Site Map of North Bend Air National Guard Station, North Bend, Oregon



Source: USGS Lakeside Quadrangle, Oregon, 1985

the 104th TCF relocated to North Bend AFS and reactivated the site as the North Bend ANGS.

III. ENVIRONMENTAL SETTING

A. Meteorology

Precipitation in Portland, Oregon averages 37.81 inches annually, and in North Bend, Oregon averages 60.00 inches annually. By calculating net precipitation according to the method outlined in the Federal Register (47 FR 31224, 16 July 1982), a net precipitation value of 13.81 inches per year is obtained for Portland and 36.00 inches per year is obtained for North Bend. Rainfall intensity based on 1-year, 24-hour rainfall for Portland is 2.0 inches and 3.0 inches for North Bend (calculated according to 47 FR 31235, 16 July 1982, Figure 8).

B. Geology

1. Regional

a. Portland ANGB

Multnomah County, Oregon, and the Portland area are situated on the topographic division known as the Columbia Plateau. During the latter part of the Eocene Epoch (36-57 million years ago), the Portland area was influenced by volcanic eruptions in the eastern part of the area. Fissure eruptions of flood basalt during the middle Miocene Epoch (5-24 million years ago) produced great plains of Columbia River Basalt east of the Portland area. During the late Miocene and early Pliocene Epochs (2-5 million years ago), weathering processes changed the exposed rocks partially to clay. As the basins were filled, or when the outlets had been breached to the level of the surface of the sedimentary accumulations, conditions were changed suddenly to an environment of stream deposition. The Columbia River brought its load of coarse gravel and sand of foreign origin through the Cascade Mountains and deposited it in the gradually subsiding basin. These gravel deposits of the early Pliocene Columbia River form an important part of the Troutdale Formation. The Post-Troutdale Pliocene Epoch was a time of renewed small-scale discontinuous volcanic activity.

b. North Bend ANGS

The bedrock in the North Bend ANGS area consists of Mesozoic basalts, turbidites, conglomerates, sandstones and siltstones, including the Rogue Formation, the Galice Formation, serpentinite and diorite intrusions, the Otter Point Formation, the Dothan Formation, the Riddle Formation, the Humbug Mountain Conglomerate, and the Days Creek Formation. The total thickness of these units is approximately ten miles. Overlying the Mesozoic Formations are Cenozoic (Eocene) turbidite sandstones and siltstones of the Roseburg Formation, the Looking-glass Formation, the Fluornoy Formation, the Tyce Formation, and the Elkton Formation. Overlying these units are the Bateman, Colorado, Bastendorf, and Tunnel Point Formations of the late Eocene to early Oligocene Epochs. These are overlain by unnamed Miocene beds, the Pliocene Empire Formation, the Pleistocene Coquille Formation, and marine and river terrace deposits. The surficial deposits consist of alluvium.

2. Local

a. Portland ANGB

The Portland ANGB is located on a levee-protected flood plain of the Columbia River. Typically, the Recent alluvial subsurface materials of the flood plain consist of bedded sands, silts and clays. Studies have indicated that these fine-grained materials range in thickness from 100 to 200 feet. Underlying the finer-grained deposits are Pleistocene gravels and/or Pliocene gravels of the Troutdale Formation.

The soils at Portland ANGB are represented by two soil series. The Pilchuck Soil Complex accounts for almost all the soils found at Portland, while the Sauvie-Rafton Complex accounts for a small area at the south-southwest corner of the Portland ANGB. Undisturbed Pilchuck Soils consist of several soil layers: the surface layer is very dark grayish-brown sand about 12 inches thick. The underlying layer is dark brown sand to a depth of 60 inches or more. About 35 percent of this complex is sandy material 20 feet or more in

depth. This material has been dredged and deposited over Moag, Rafton, and Sauvie Soils and in some areas it has been used to fill small swamps. In most areas the fill has raised the surface to an elevation above the annual flood plain. Permeability of the Pilchuck Soil is rapid. The Sauvie-Rafton Complex consists of very deep, poorly drained Sauvie Soils and very poorly drained Rafton Soils. These soils occur on the broad flood plains along the Columbia River. The surface layer is very dark grayish-brown silt loam about 15 inches thick. The subsoil, a dark grayish-brown silty clay loam, is mottled and is about 24 inches thick. The substratum is dark grayish-brown, mottled, very fine sandy loam to a depth of 60 inches or more. Permeability rates for these soils range from 1.4×10^{-4} cm/sec to 1.4×10^{-2} cm/sec.

b. North Bend ANGS

North Bend ANGS is located in Coos County, Oregon, in a lowland area consisting of forest, dunes and estuaries. The land is gently sloping and elevations generally do not exceed 20 feet. Adjacent to the Station is Siuslaw National Forest. The local soils consist of Templeton silt loam. The soil is well drained, and is formed in weathered colluvium. The surface layer is very dark brown to dark brown in color and is approximately 16 inches thick. The subsoil is reddish-brown to very brown silty clay loam, approximately 26 inches thick. Weathered sedimentary rock occurs at approximately 42 inches. Permeability rates for these soils range from 4.2×10^{-4} to 1.4×10^{-3} cm/sec.

C. Hydrology

1. Surface Water

a. Portland ANGB

Portland ANGB is within the boundaries of the 100-year floodplain. Surface waters from the Base eventually find their way into the Columbia River via small runs and branches, drainage ditches, and eventually small tributaries. To the south of the Base is the Columbia Slough, which is a drainage waterway that empties into the Columbia River.

b. North Bend ANGS

The surface water at North Bend ANGS consists of North Slough Creek to the south and Shutters Creek to the south. A Shutter Creek tributary flows north of the Station towards Tenmile Lake. North Slough Creek is the domestic water supply at the Station and housing complex. The creek yields 11,631 gallons/day.

2. Groundwater

Groundwater is obtained from the Columbia River Basalt, the Troutdale Formation, and from the unconsolidated Quaternary deposits. In Portland (Multnomah County), almost all supplies of water for individual and municipal facilities are drawn from the Bull Run River. The supply of water is a composite from the glacial runoffs and precipitation. A groundwater development program, Pilot Well Study, was conducted for the City of Portland Bureau of Water Works in 1978. Two of the three aquifers described in this study are of some concern, because of their proximity to the Portland ANGB. There is a potential risk for contamination of the Troutdale Sandstone Aquifer and Troutdale Gravel Aquifer because the depth to the aquifer can be as shallow as 20 feet, although its maximum depth is 335 feet.

At the Portland ANGB, groundwater flow is generally northwesterly towards the Columbia River, and the water table is shallow and variable. Groundwater levels are influenced by rainwater infiltration, runoff, and Columbia River water levels, but Columbia Slough water levels and pumpage from the Multnomah County Drainage District are the main controlling factors. Generally, the water table is lowest in the late summer and fall and highest in the winter and spring. Multnomah Drainage District pumping attempts to maintain slough water levels between 9.8 feet and 11.8 feet (from east to west) above mean sea level.

Groundwater at North Bend ANGS is shallow and can be found at depths less than six feet.

D. Critical Habitats/Endangered or Threatened Species

Documents sent by personnel from the Oregon Department of Fish and Wildlife disclosed that there are no endangered or threatened flora or fauna within one mile of Portland ANGB or North Bend ANGS.

There are no critical habitats, wetlands, or wilderness areas in the vicinity of Portland ANGB.

There are no critical habitats or wetlands in the vicinity of North Bend ANGS; however, the ANGS is adjacent to the Siuslaw National Forest and Elliott State Forest.

IV. SITE EVALUATION

A. Activity Review

A review of Base and Station records and interviews with past and present Base and Station employees at Portland ANGB and North Bend ANGS resulted in the identification of specific operations within each activity in which the majority of industrial chemicals are handled and hazardous wastes are generated. Tables 1 and 1A summarize the major operations associated with each activity, provides estimates of the quantities of waste currently being generated by these operations, and describes the past and present disposal practices. Any operation that is not listed in Tables 1 and 1A has been determined to produce negligible quantities of wastes requiring ultimate disposal. For example, small volumes of methyl ethyl ketone may be used on occasion, it commonly evaporates after use, and therefore it does not present a disposal problem. Conversely, if a particular volatile compound is listed, then the quantity represents an estimate of the amount actually disposed of according to the method shown.

B. Disposal/Spill Site Identification, Evaluation, and Hazard Assessment

Interviews with 19 Base personnel (Appendix A) and subsequent site inspections resulted in the identification of eight potentially contaminated disposal/spill sites on Portland ANGB and seven potentially contaminated disposal/spill sites on North Bend ANGS. Seven of the 15 sites present the potential for contamination migration (Step 4 of Figure 1), and six of these were further evaluated using HARM and assigned a HAS. Copies of the completed HARM scoring forms are found in Appendix C. Table 2 summarizes the HARM scores for each of the sites; brief descriptions of the sites follow. The locations of the potentially contaminated sites identified at Portland ANGB are illustrated in Figure 3, and the locations of the potentially contaminated sites identified at North Bend ANGS are illustrated in Figure 4.

Table 1. Shops that Generate Hazardous Waste/Used Hazardous Material at Portland ANGB, Portland, Oregon

Shop	Building No. (Past & Present)	Hazardous Waste/ Used Hazardous Material	Estimated Quantities (Gal./Year)	Method of Treatment/Storage/Disposal 1945	1950	1964	1980	Present
AGE Maintenance	1225	Oil	150			CONTRACT--RECYCLE----------		
		DF-2	<100			CONTRACT---RECYCLE---------		
		Sulfuric Acid	10-15			CONTRACT----SAN.SEWER------		
		PD-680	10			CONTRACT--RECYCLE----------		
Information System Flight	1225	DF-2	220			CONTRACT--RECYCLE----------		
		Waste Oil	55			CONTRACT--RECYCLE----------		
		Waste Solvents	20			CONTRACT--RECYCLE----------		
Vehicle Maintenance Motor Pool	1100	Enamel Paint	1200				CONTRACT--DRMO--------	
		Oil (crankcase)					CONTRACT-------------	
		Slop Waste	110				CONTRACT--DRMO--------	
		Sulfuric Acid					CONTRACT--NEUT.-------	
		PD-680					CONTRACT-------------	
Supplies	1336	Waste Oil	4000				CONTRACT-------------	
		Waste Solvents	3000				CONTRACT-------------	
NDI-Laboratory	1354	Xylene	25				CONTRACT-------------	
		Photographic Chemicals	40				RECYCLE--------------	
		Acetic acid	40					

NEUT. - Neutralized and drained to sanitary sewer
CONTRACT - Disposed of by Contractor
DRMO - Disposed of by Defense Reutilization and Marketing Office
RECYCLE - Private Contractor ----- School System

Table 1A. Shops that Generate Hazardous Waste/Used Hazardous Material at North Bend ANGS, North Bend, Oregon

Shop	Building No. (Past & Present)	Hazardous Waste/ Used Hazardous Material	Estimated Quantities (Gal./Year)	Method of Treatment/Storage/Disposal 1981	Present
Waste Oil Storage Tank	11	Tetrachloroethylene,		'--------CONTRACT---RECYCLE-------	
		Oil		'--------CONTRACT----------	
		Sulfuric Acid	10-15	'--------PORTLAND----------	
Unit Vehicle Fueling Facility	7	DF-2	400	'--------CONTRACT---RECYCLE-------	
		Sulfuric Acid	10-15	'--------CONTRACT----SAN.SEWER----	
		PD-680	10	'--------CONTRACT--RECYCLE--------	
Combat Control Fight	1225	DF-2	220	'--------CONTRACT--RECYCLE--------	
		Waste Oil	55	'--------CONTRACT--RECYCLE--------	
		Waste Solvents	20	'--------CONTRACT--RECYCLE--------	
		Battery Acid	5	'--------CONTRACT----------	
		Paint Thinner	10	'--------INCINERATOR----------	

CONTRACT - Disposed of by Contractor
RECYCLE - Private Contractor ----- School System
INCINERATION - Burned as required

Table 2. Summary of the Results of the Air Force HARM Ratings for Sites at Portland ANGB, Portland, Oregon

Site Priority	Site Number	Site Description	Receptor	Waste Characteristics	Pathway	Waste Management Practices	Overall Score
1	4	Main Drainage Ditch	32	80	39	1.0	50
2	7	Burn Pit Area	32	80	39	1.0	50
3	1	Central Hazardous Waste Storage Area	32	60	39	1.0	44
4	3	Hush House Area	32	60	39	1.0	44
5	5	Age Maintenance Shop	32	50	39	1.0	40
6	2	Civil Engineering Hazardous Material Storage Area	32	50	39	1.0	40

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Figure 3.

Map of Rated/Unraged Sites at Portland International Airport (ANGB) Portland, Oregon.

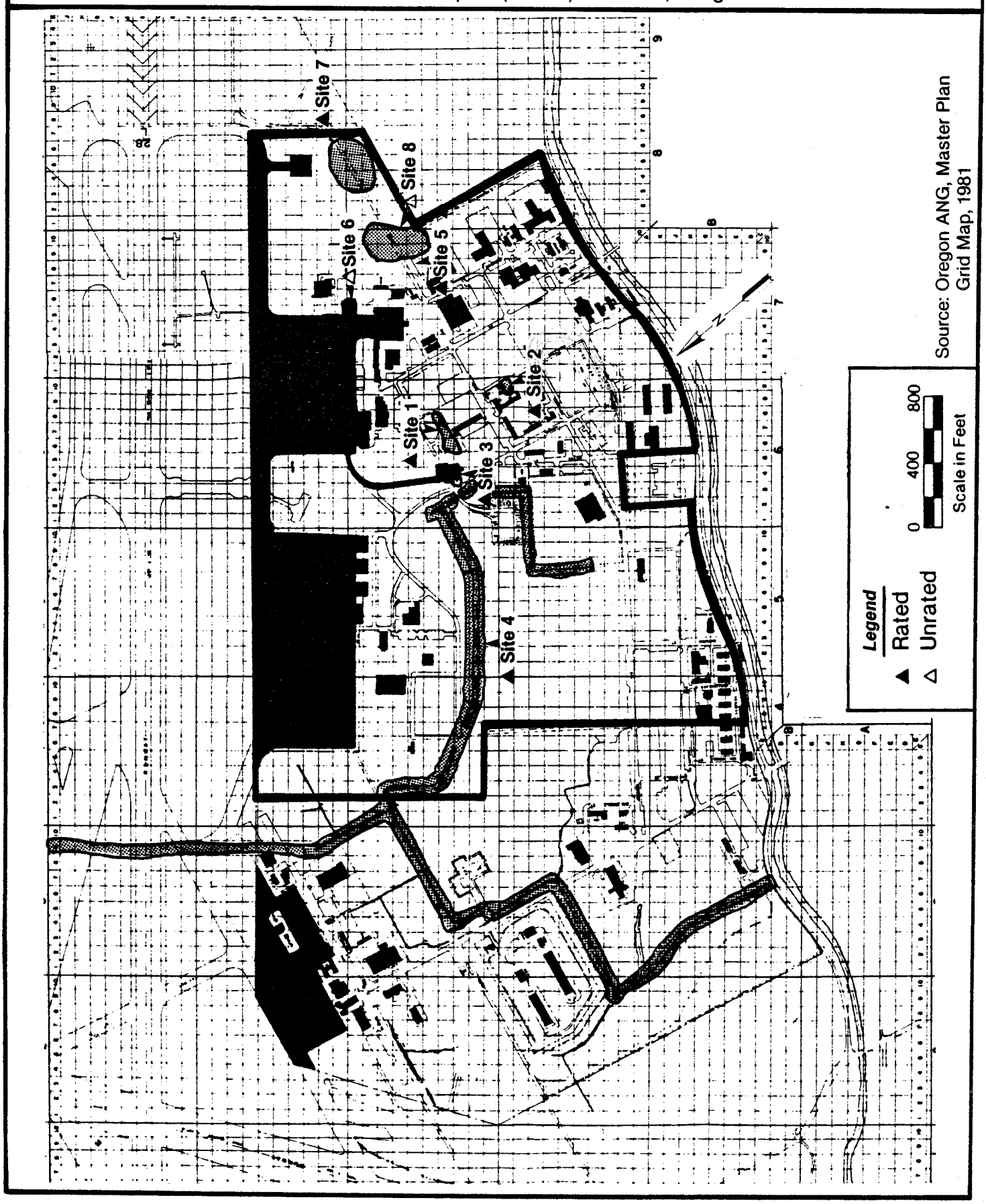

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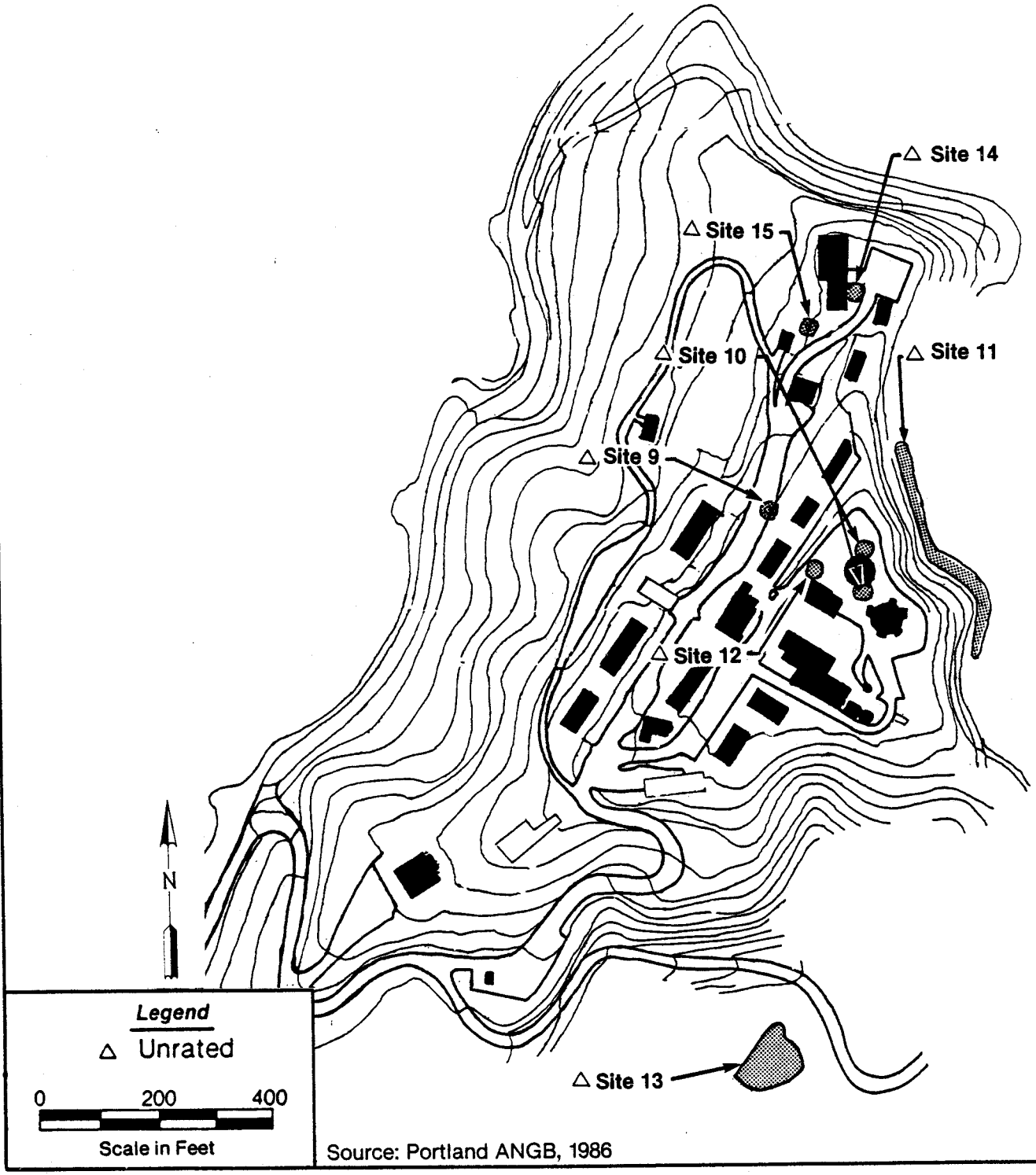
Figure 4.

Locations of Site Nos. 9, 10, 11, 12, 13, 14 and 15 at North Bend Air National Guard Station, North Bend, Oregon.



Source: Portland ANGB, 1986

Potentially Contaminated Sites Identified at Portland ANGB, Portland, Oregon

Site No. 1 - Central Hazardous Waste Storage Area (HAS-44)

This hazardous waste temporary storage area is located adjacent to the northeast corner of Building 1131 (see Figure 3A). Since 1970, this site has been used for the temporary storage of 55-gallon drums containing waste oil, solvents, fuels, PD-680, DF-2, slop waste, and transformers and capacitors on pallets. The area consists of gravel with no containment structures. Discolored gravel and soil was observed throughout the area. No major spills have been recorded at this site, but because of the variety of the waste stored there and the presence of discolored gravel and soil, a HAS was necessary.

Site No. 2 - Civil Engineering Hazardous Material Storage Area (HAS-40)

The site is adjacent to Building 1123 on Schilling Street (see Figure 3A). The building is not enclosed and has an open gravel floor. Drums are stored in a horizontal position on steel legs. Other than drippings and seepage, no spills have been noted at this site. However, during the site inspection, the HMTC team observed the methyl ethyl ketone drum leaking from the faucet area, as well as discolored gravel throughout the storage area. For these reasons, a HAS was deemed necessary.

Site No. 3 - Hush House Area (HAS-44)

HMTC observed discolored soil and grass throughout the Hush House Area (see Figure 3A). The oil/water separator and/or the holding tank could be a contributing factor. Interviewees had indicated that the oil/water separator was not functioning properly and there are no records of when the holding tank was last pumped out. Due to the evidence of past leakage, a HAS was necessary.

Site No. 4 - Main Drainage Ditch (HAS-50)

The Portland ANGB personnel indicated that numerous fuel spills have occurred at this site over the past five years (see Figure 3B). JP-4, AVGAS, diesel

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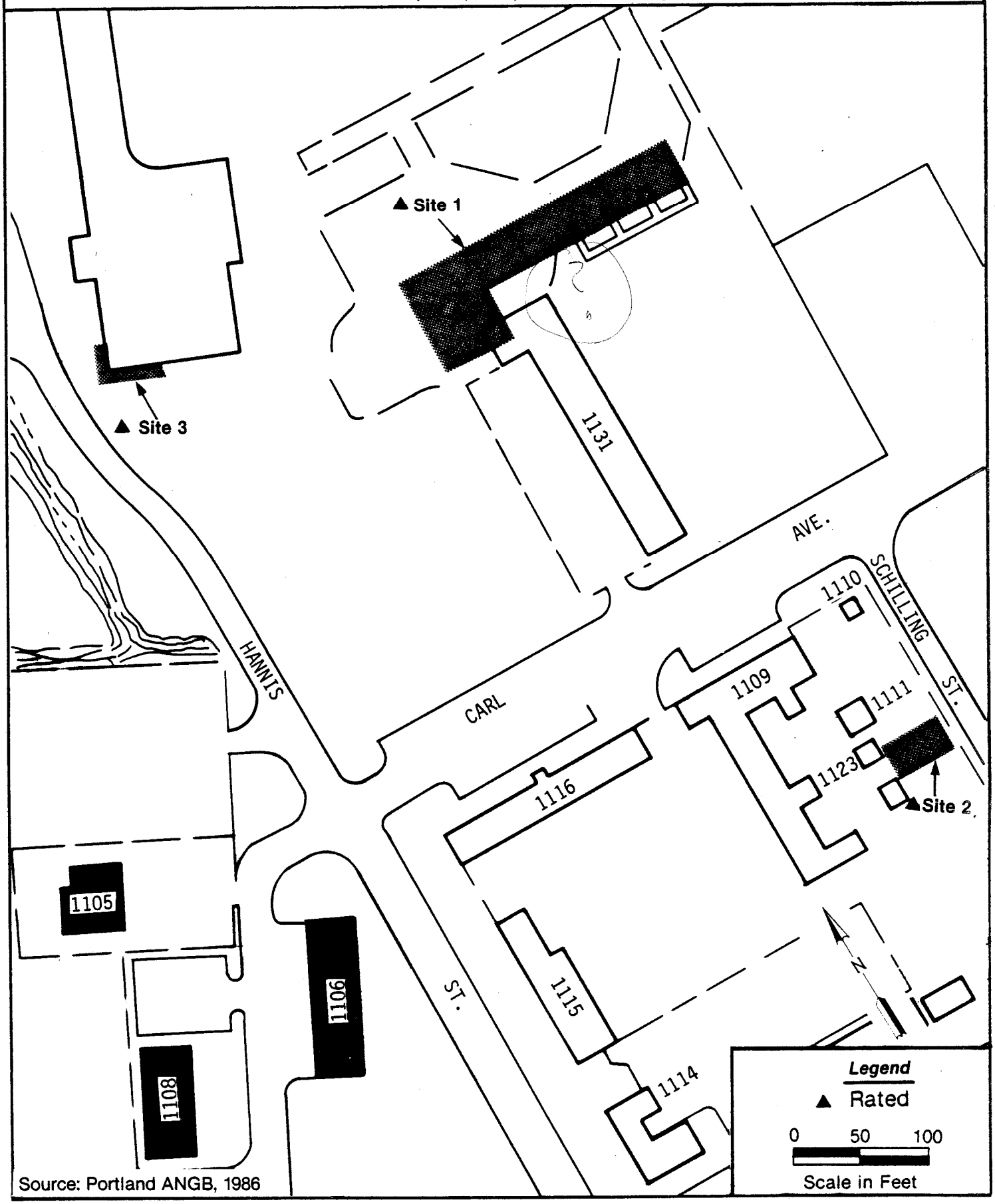
Figure 3A.

Location of Site Nos. 1, 2, and 3, at Portland International Airport (ANG) Portland, Oregon.

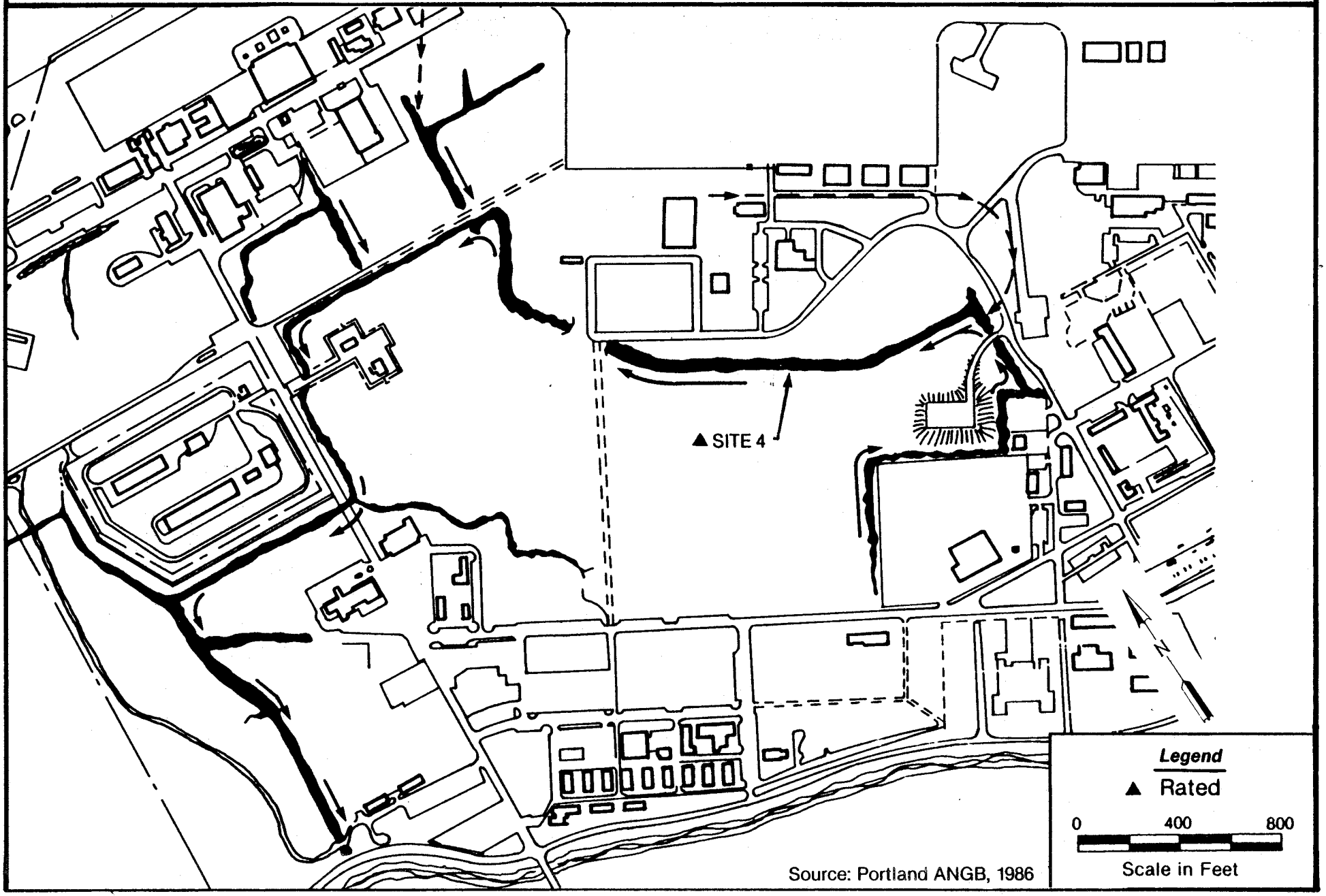


Source: Portland ANGB, 1986

HMTC

Figure 3B.

Location of Site No. 4 at Portland International Airport (ANG) Portland, Oregon.



and any other HW/HM from runways, aprons, and other paved areas which are not readily absorbed into the ground, ultimately find their way into the Base drainage ditch system either directly, through storm drain openings, or via rainwater runoff.

The aircraft apron areas, where fuel and oil spills occur, are drained by pipes and ditches and are not connected to pollution control facilities. Some of the inlets in these areas have submerged outlets which provide some retention of floatables, but for large spills or during heavy rainfall such devices are inadequate to prevent fuel or oil from escaping. According to interviewees, fuel and oil have often been evident in the drainage ditches downstream from the apron area.

Running water flows through the Base drainage system only during periods of precipitation. Consequently, small spills and industrial discharges do not always flow directly offbase, but would more likely tend to accumulate in areas proximate to actual points of discharge. For this reason, areas along the apron and runway drainage ditch system are most suspect.

Thus, through a combination of spills, industrial discharges, or dumping, it is probable that the Base drainage ditch system has received a substantial quantity of contaminants over the years. For this reason, the Base drainage ditch system is considered as a potential hazardous waste site with high contaminant migration potential, and a HAS is deemed necessary.

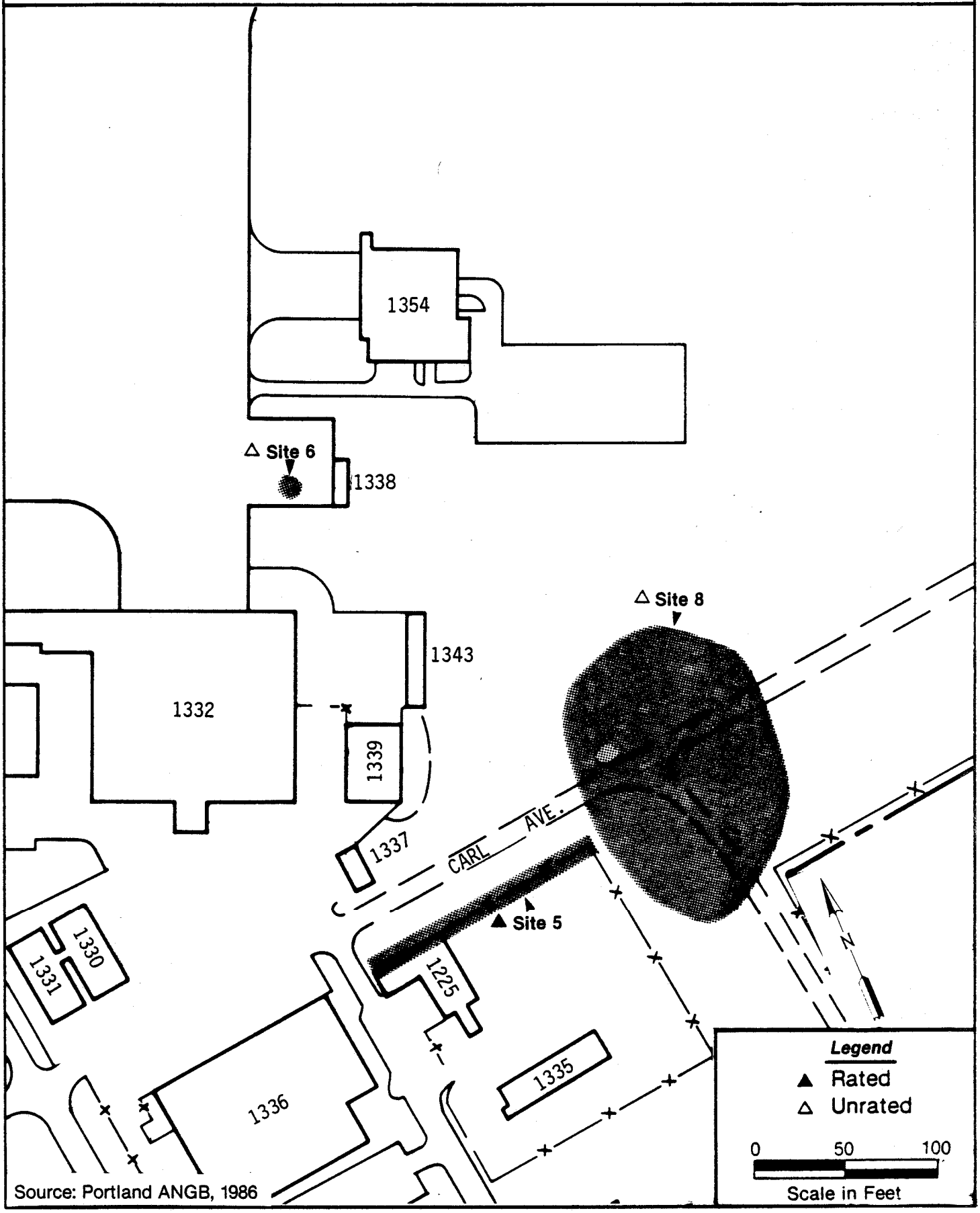
Site No. 5 - AGE Maintenance Shop (HAS-40)

This site is adjacent to Building 1225 on Carl Street (see Figure 3C). The Base motor pool used this area until 1972. Along the fence on the northeast side of Building 1225, the HMTC survey team observed discolored soil, gravel, and stressed vegetation. The area along the fence was used to drain batteries, and buckets of oil and solvent were also occasionally dumped in this area. Thus, this site received a HAS.

HMTC

Figure 3C.

Location of Site Nos. 5, 6 and 8 at Portland International Airport (ANG) Portland, Oregon.



Source: Portland ANGB, 1986

Site No. 6 - Wash Rack West of Building 1355 (Unscored)

The oil/water separator is used to collect residual oil and soapy water from the wash down area (see Figure 3C). Interviews noted that the oil/water separator was hooked up to the sanitary sewer lines in 1984; however, there were no records to indicate the removal of waste oil. There were no signs of contamination or environmental stress in this area, and no reason to believe any HM/HW entered the system, so no HAS was necessary.

Site No. 7 - Burn Pit Area (HAS-50)

The burn pit area is located on the northeast side of the Base off Carl Avenue, and operated from 1957 to 1978 (see Figure 3D). The open pit area served as a fire training area. JP-4 and various flammable substances possibly contained some waste shop solvents, which were ignited in the burn pit. There are no visible containment structures or berms at the burn pit area. It is estimated that several thousand gallons of flammable liquids may have been disposed of in the pit each year; therefore, a HAS was necessary.

Site No. 8 - Sanitary Landfill (Unscored)

This site is located north of east Perimeter Road and Carl Avenue (see Figure 3C). The landfill was operated by the Air Force from 1950 to 1964, and was used by the ANGB until the mid 1970's. After reviewing all information presented during the Records Search, it was determined that there is no direct evidence of any HW/HM having been disposed of at this landfill. There were no areas of accumulated drums or containers which would appear to have contained HW/HM, and there were no indications of chemical odors. Based on information provided, the site could not be assigned a HAS. However, experience with similar types of Air National Guard sanitary landfills indicates the need for limited investigation at this site. If the recommended investigation indicates pollutant levels above standard acceptable levels, further action, including a HAS and further investigative activities, should be performed.

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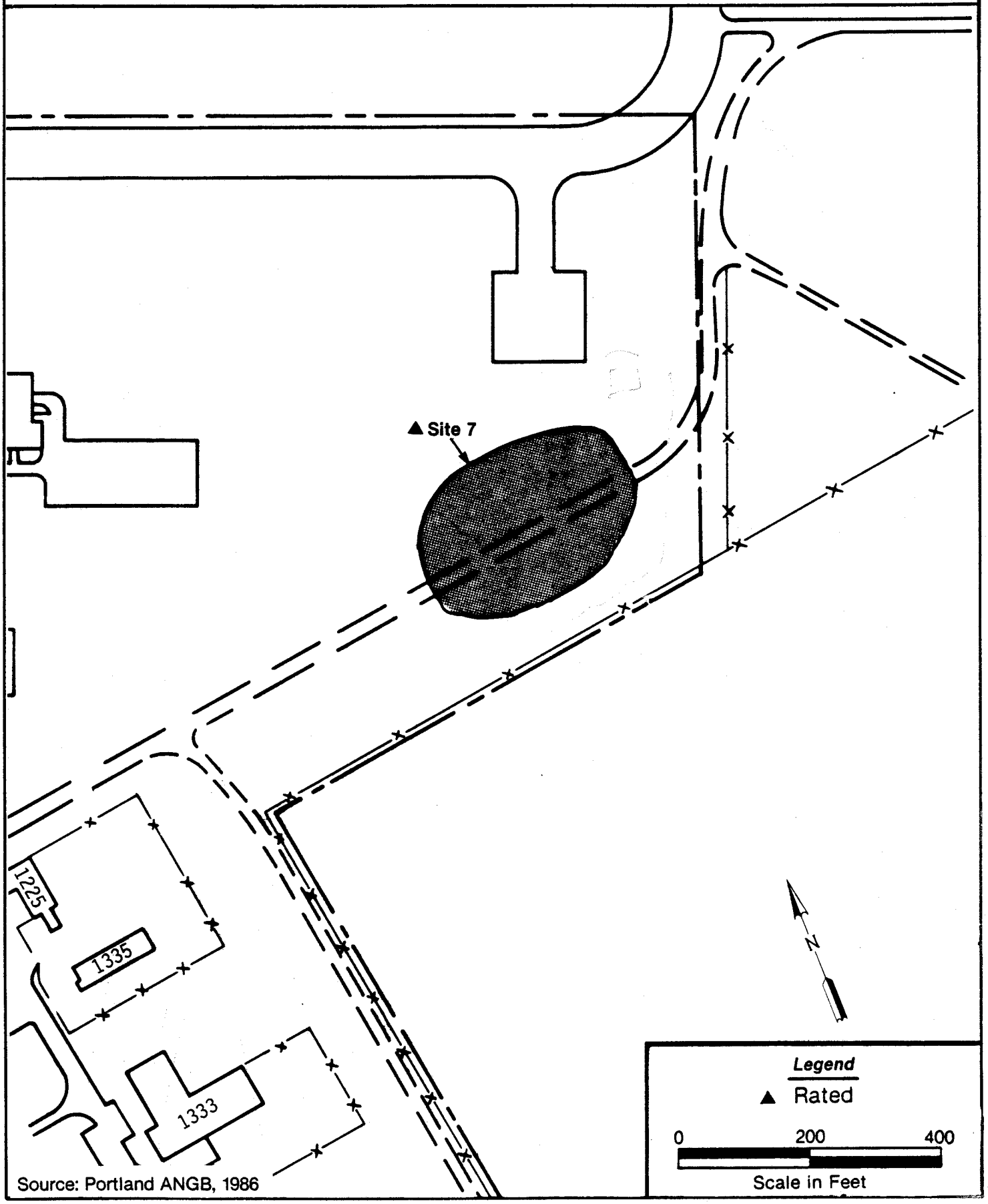
Figure 3D.

Location of Site No. 7 Sites at Portland International Airport (ANG) Portland, Oregon



Source: Portland ANGB, 1986

Potentially Contaminated Sites Identified at North Bend ANGS, North Bend, Oregon

Site No. 9 - Transformer Area (Unscored)

In 1984 and 1985, there was evidence of several transformers leaking from a utility pole (see Figure 4A). Samples were taken from the transformer and the soil. Analytical results reported values less than the detection limit of 5 mg/kg for PCBs. See Appendix D for oil sample analytical results. Since the site poses no threat to health or the environment, further evaluation and a HAS are not necessary.

Site No. 10 - Chemical Disposal Area (Unscored)

This area is adjacent to Building 35 (see Figure 4A). From 1965 to 1979, the area was occasionally used to dispose of small quantities (approximately one cup) of tetrachloroethylene, methyl ethyl ketone, waste oil, and ethylene glycol. The area shows no signs of vegetative stress. A HAS was not necessary due to the small amounts of chemicals involved.

Site No. 11 - Mechanical and Electrical Components (Unscored)

This area is located on the southeast side of the ANGS (see Figure 4A). Unknown quantities of electrical and mechanical components were discarded by disposing of them over the hillside. Review of all available information indicated that there is no direct evidence of HM/HW having been disposed of at this site. As such, a HAS was not necessary.

Site No. 12 - Underground Storage Tank (Unscored)

An underground, 10,000 gallon storage tank is located North of Building 11 (see Figure 4A). The tank is presently used to store waste oils. There were no signs of past or present leakage or spillage, and no HAS is required.

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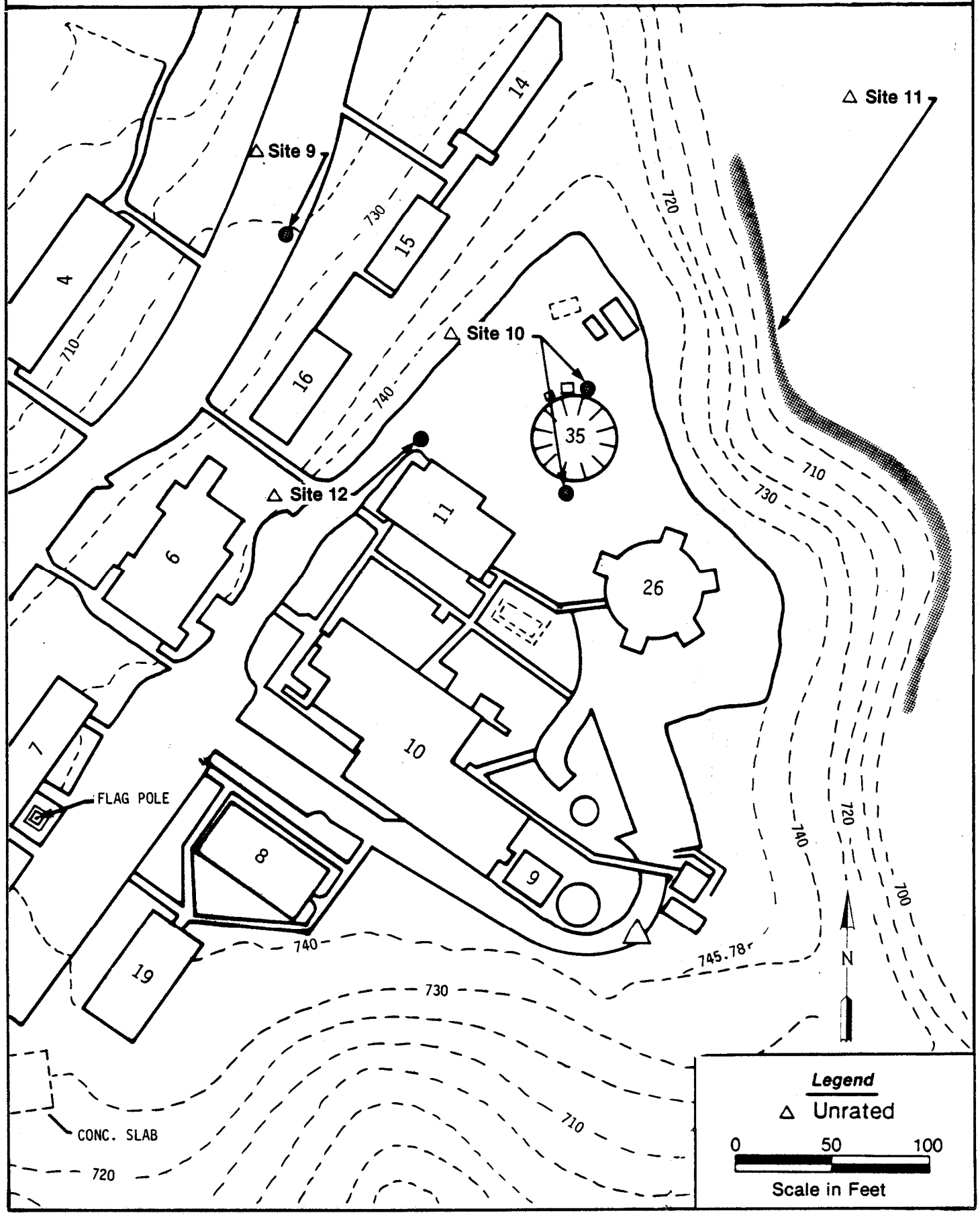
Figure 4A.

Location of Site Nos. 9, 10, 11 and 12, at North Bend Air National Guard Station, North Bend, Oregon.



Site No. 13 - Construction Debris (Unscored)

This area is located on the south end of the ANGS (see Figure 4B). Interviewees reported that unknown amounts of construction debris were disposed of at this site, including carpentry, welding, plastic, and asbestos materials. The presence of asbestos could not be confirmed, nor was there any evidence to confirm the presence of any hazardous wastes. As such, a HAS and further evaluation are not required.

Site No. 14 - DF-2 Spill (Unscored)

Interviewees reported a 1984 No. 2 Diesel fuel spill of approximately 100 gallons (see Figure 4B). No data exists on whether any of the fuel was recovered. An inspection of the site failed to turn up any evidence of the spill and no environmental stress was present. As such, it was determined that a HAS was not necessary.

Site No. 15 - Oil Drum Storage Area (Unscored)

The oil drum storage area, adjacent to Building 34 (see Figure 4B) is a totally enclosed wooden shed, approximately 8-1/2 x 11 feet in size. The building is used for storing ground maintenance equipment and small amounts of oil, gasoline, and solvents. During the Records Search, interviewees disclosed that past tenants used the building for storing oils, solvents, gasoline and, at one time, electrical transformers. The HMTC survey team observed oily discolored soil and vegetative stress over a 3 ft^2 area. However, because the ANGS is in a dense forest and no residential development exists within a 1-mile radius, this site causes no significant environmental impact. A HAS was deemed unnecessary.

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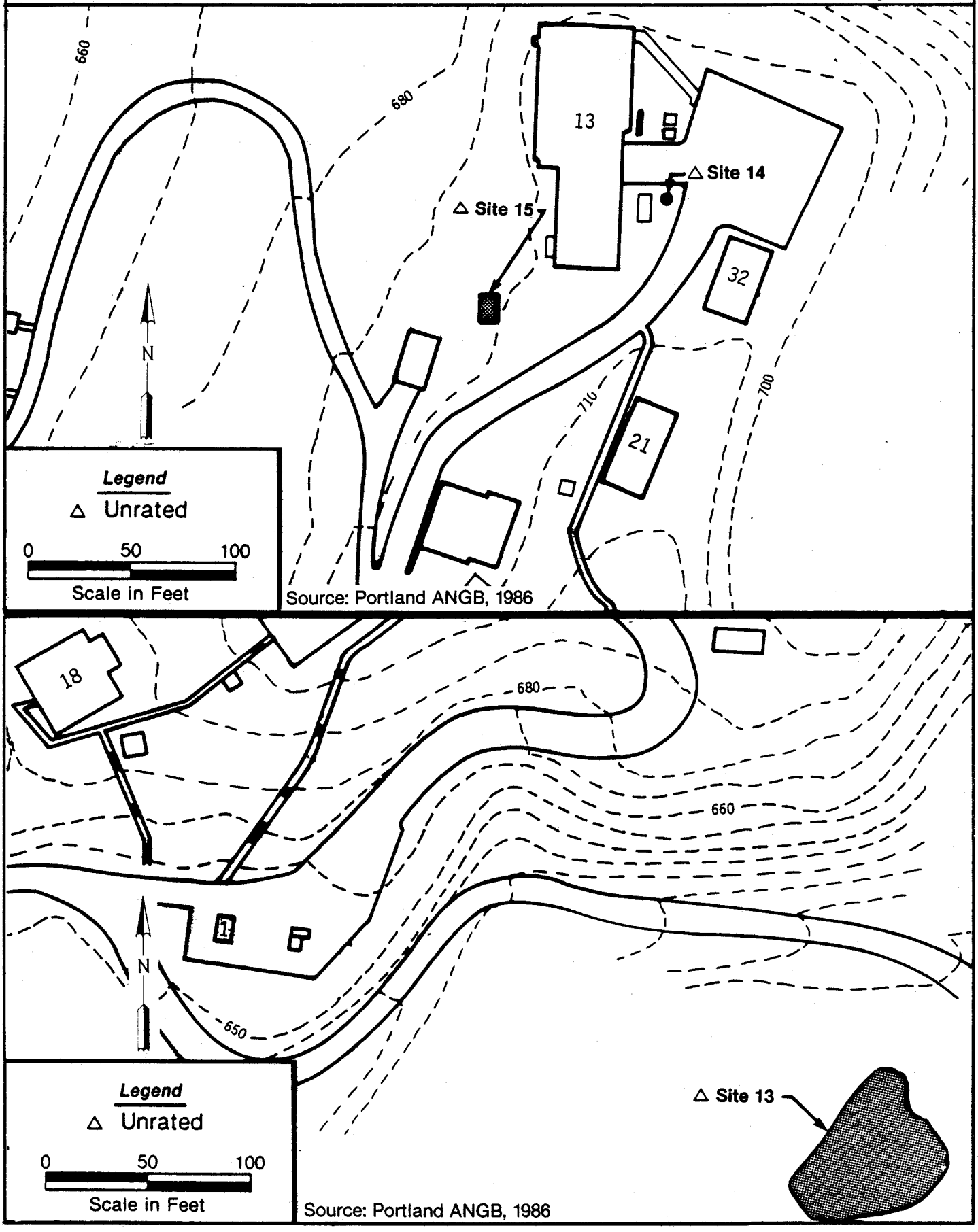
Figure 4B.

Locations of Site Nos. 13, 14 and 15, at North Bend Air National Guard Station, North Bend, Oregon



C. Other Pertinent Findings

- Sanitary sewage is treated municipally, offbase for Portland ANGB and North Bend ANGS.
- There are no active landfills on either property.
- Waste oils have never been used for road dust control on either property.
- No environmental monitoring has been conducted onbase, to date, at Portland ANGB.
- Radioactive waste has never been disposed of on either Base property.
- There are no current operating FTAs at either Base.
- Hazardous wastes are removed by private contractor from each Base on an as-needed basis.
- There are no ordinance disposal sites on either property.
- There are only small amounts of pesticides stored on either Base property.
- Significant pollution apparently enters the Portland ANGB drainage ditch near Building 729 through a pipe coming from an area to the north of the Base. This ditch is downstream of the new western boundary of the Base and will not concern the Air National Guard after the property is transferred to the Port Authority.

V. CONCLUSIONS

- Information obtained through interviews with 19 Base and Station personnel, review of Base and Station records, and field observations have resulted in the identification of eight potentially contaminated disposal and/or spill sites at the Portland ANGB, Portland, and seven sites at North Bend ANGS.

- No evidence of offbase environmental stress resulting from spills or disposal of HW/HM was observed in the immediate vicinity of Portland ANGB or North Bend ANGS.

- Six of the nineteen potential sites (Site Nos. 1, 2, 3, 4, 5, and 7) have been scored using the Air Force HARM.

- Nine sites (Site Nos. 6, 8, 9, 10, 11, 12, 13, 14, and 15) were eliminated from further study because it was concluded that they exhibit no potential for contaminant migration and therefore pose no significant hazards to health and welfare. Site Nos. 15 elimination is contingent upon sampling results.

VI. RECOMMENDATIONS

There is potential for contaminant migration at Portland ANGB; therefore, initial stages of the IRP Phase II/IVA are recommended. The purpose of further IRP work is to confirm or refute the presence of contamination at the sites. If confirmation is made, subsequent investigative efforts should be accomplished in order to fully characterize the extent of any soil and groundwater contamination. Requirements for those efforts would be outlined in the Phase II/IVA Statement of Work (SOW), if they are needed.

Site No. 1 - Central Hazardous Waste Storage Area

Further IRP analysis is required at this site to determine if contamination exists.

Site No. 2 - Civil Engineering Hazardous Material Storage Area

Further IRP analysis is required at this site to determine if contamination exists.

Site No. 3 - Hush House Area

Further IRP analysis is required at this site to determine if contamination exists.

Site No. 4 - Main Drainage Ditch

Further IRP analysis is required at this site to determine if contamination exists.

Site No. 5 - AGE Maintenance Shop

Further IRP analysis is required at this site to determine if contamination exists.

Site No. 7 Burn Pit Area

Further IRP analysis is required at this site to determine if contamination exists.

Site No. 8 - Sanitary Landfill

Further IRP analysis is required at this site to determine if contamination exists.

GLOSSARY OF TERMS

AQUICLUDE - A confining bed that prevents the flow of water to or from an adjacent aquifer.

AQUIFER - A geologic formation, or group of formations, that contains sufficient saturated permeable material to conduct groundwater and to yield economically significant quantities of groundwater to wells and springs.

AQUITARD - A confining bed that retards but does not prevent the flow of water to or from an adjacent aquifer.

CONE OF DEPRESSION - A depression of the water table or potentiometric surface surrounding a discharge well which is more or less the shape of an inverted cone.

CONTAMINANT - As defined by Section 101(f)(33) of Superfund Amendments and Reauthorization Act of 1986 (SARA) shall include, but not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction), or physical deformation in such organisms or their offspring; except that the term "contaminant" shall not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under

(a) any substance designated pursuant to Section 311(b)(2)(A) of the Federal Water Pollution Control Act,

(b) any element, compound, mixture, solution, or substance designated pursuant to Section 102 of this Act,

(c) any hazardous waste having the characteristics identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress),

(d) any toxic pollutant listed under Section 307(a) of the Federal Water Pollution Control Act,

(e) any hazardous air pollutant listed under Section 112 of the Clean Air Act, and

(f) any imminently hazardous chemical substance or mixture with respect to which the administrator has taken action pursuant to Section 7 of the Toxic Substance Control Act;

and shall not include natural gas, liquefied natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas).

CRITICAL HABITAT - The native environment of an animal or plant which, due either to the uniqueness of the organism or the sensitivity of the environment, is susceptible to adverse reactions in response to environmental changes such as may be induced by chemical contaminants.

DISCHARGE - The release of any waste stream or any constituent thereof to the environment which is not recovered.

DOWNGRADIENT - A direction that is topographically or hydraulically downslope; the direction in which groundwater flows.

ENDANGERED SPECIES - Wildlife species that are designated as endangered by the U.S. Fish and Wildlife Service.

GROUNDWATER - Refers to the subsurface water that occurs beneath the water table in soils and geologic formations that are fully saturated.

HARM - Hazard Assessment Rating Methodology - A system adopted and used by the United States Air Force to develop and maintain a priority listing of potentially contaminated sites on installations and facilities for remedial action based on potential hazard to public health, welfare, and environmental impacts. (Reference: DEQPPM 81-5, 11 December 1981).

HAS - Hazard Assessment Score - The score developed by utilizing the Hazardous Assessment Rating Methodology (HARM).

HAZARDOUS MATERIAL - Any substance or mixture of substances having properties capable of producing adverse effects on the health and safety of the human being. Specific regulatory definitions also found in OSHA and DOT rules.

HAZARDOUS WASTE - A solid or liquid waste that, because of its quantity, concentration, or physical, chemical, or infectious characteristics may

a. cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or

b. pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

HYDRAULIC CONDUCTIVITY - The rate at which water can move through a permeable medium.

HYDRAULIC GRADIENT - The difference in head (elevation of water surface) at two points divided by the distance between these two points.

MIGRATION (Contaminant) - The movement of contaminants through pathways (groundwater, surface water, soil, and air).

PERMEABILITY - The capacity of a porous rock, sediment, or soil for transmitting a fluid without impairment of the structure of the medium; it is a measure of the relative ease of fluid flow under unequal pressure.

STRATA - Distinguishable horizontal rock layers separated vertically from other layers.

SURFACE WATER - All water exposed at the ground surface, including streams, rivers, ponds, and lakes.

THREATENED SPECIES - Wildlife species that are designated as threatened by the U.S. Fish and Wildlife Service.

UPGRADIENT - A direction that is topographically or hydraulically upslope.

WATER TABLE - The upper limit of the portion of the ground that is wholly saturated with water.

WETLANDS - Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

WILDERNESS AREA - An area unaffected by anthropogenic activities and deemed worthy of special attention to maintain its natural condition.

BIBLIOGRAPHY

1. Allen, John Elliott and Ewart M. Baldwin. Geology and Coal Resources of the Coos Bay Quadrangle, Oregon. Bulletin No. 27; State of Oregon. Department of Geology and Mineral Resources, Portland, Oregon, 1944.

2. Federal Register (47 FR 31224), 16 July 1982.

3. Federal Register (47 FR 31235), 16 July 1982.

4. Green, G.L., Smythe, R.T. and High, C.T., Soil Survey of Multnomah County, Oregon, United States Department of Agriculture, Soil Conservation Service and Forest Service, in Cooperation with Oregon Agricultural Experiment Station, U.S. Government Printing Office, Washington, D.C., 1983.

5. Soil Conservation Service, Guide For Using Soil Survey Single Phase Interpretation Sheets, Portland, Oregon, 1981.

6. Soil Conservation Service, Soil Interpretations Record, Templeton Silt Loam, Portland, Oregon, 1944.

7. Trimble, D.E. Geology of Portland, Oregon and Adjacent Areas, Geological Survey Bulletin 1119, U.S. Government Printing Office, Washington, D.C., 1963.

8. Watkins, William C., F.A. Watkins; and H .A., Swenson. Water Resources of Portland, Oregon and Vancouver, Washington Area. U.S. Geological Survey Circular 372., Washington, D.C., 1956.

9. Willis, R.F., Groundwater Development Program, Pilot Well Study, Conducted for the City of Portland Bureau of Water Works, Portland Oregon; date unknown.

Appendix A
Interviewee Information

INTERVIEWEE INFORMATION

Interviewee Number	Primary Duty Assignment	Years Associated with North Bend ANGS
1	Station Maintenance	13
2	AGE Shop	1
3	AGE Shop	5
4	Base Engineer	5

Appendix B
USAF Hazard Assessment Rating Methodology

USAF HAZARD ASSESSMENT RATING METHODOLOGY

The Department of Defense (DoD) has established a comprehensive program to identify, evaluate, and control problems associated with past disposal practices at DoD facilities. One of the actions required under this program is to:

> develop and maintain a priority listing of contaminated installations and facilities for remedial action based on potential hazard to public health, welfare, and environmental impacts. (Reference: DEQPPM 81-5, 11 December 1981).

Accordingly, the United States Air Force (USAF) has sought to establish a system to set priorities for taking further actions at sites based upon information gathered during the Records Search phase of its Installation Restoration Program (IRP).

PURPOSE

The purpose of the site rating model is to provide a relative ranking of sites of suspected contamination from hazardous substances. This model will assist the Air National Guard in setting priorities for follow-on site investigations.

This rating system is used only after it has been determined that (1) potential for contamination exists (hazardous wastes present in sufficient quantity), and (2) potential for migration exists. A site can be deleted from consideration for rating on either basis.

DESCRIPTION OF MODEL

Like the other hazardous waste site ranking models, the U.S. Air Force's site rating model uses a scoring system to rank sites for priority attention. However, in developing this model, the designers incorporated some special features to meet specific DoD program needs.

The model uses data readily obtained during the Records Search portion (Phase I) of the IRP. Scoring judgment and computations are easily made. In assessing the hazards at a given site, the model develops a score based on the most likely routes of contamination and the worst hazards at the site. Sites are given low scores only if there are clearly no hazards. This approach meshes well with the policy for evaluating and setting restrictions on excess DoD properties.

Site scores are developed using the appropriate ranking factors according to the method presented in the flow chart (Figure 1 of this report). The site rating form and the rating factor guideline are provided at the end of this appendix.

As with the previous model, this model considers four aspects of the hazard posed by a specific site: possible receptors of the contamination, the waste and its characteristics, the potential pathways for contamination migration, and any efforts that were made to contain the wastes resulting from a spill.

The receptors category rating is based on four rating factors: the potential for human exposure to the site, the potential for human ingestion of contaminants should underlying aquifers be polluted, the current and anticipated uses of the surrounding area, and the potential for adverse effects upon important biological resources and fragile natural settings. The potential for human exposure is evaluated on the basis of the total population within 1,000 feet of the site, and the distance between the site and the base boundary. The potential for human ingestion of contaminants is based on the distance between the site and the nearest well, the groundwater use of the uppermost aquifer, and population served by the groundwater supply within 3 miles of the site. The uses of the surrounding area are determined by the zoning within a 1-mile radius. Determination of whether or not critical environments exist within a 1-mile radius of the site predicts the potential for

adverse effects from the site upon important biological resources and fragile natural settings. Each rating factor is numerically evaluated (0-3) and increased by a multiplier. The maximum possible score is also computed. The factor score and maximum possible scores are totaled, and the receptors subscore computed as follows: receptors subscore = (100 x factor score subtotal/ maximum score subtotal).

The waste characteristics category is scored in three steps. First, a point rating is assigned based on an assessment of the waste quantity and the hazard (worst case) associated with the site. The level of confidence in the information is also factored into the assessment. Next, the score is multiplied by a waste persistence factor, which acts to reduce the score if the waste is not very persistent. Finally, the score is further modified by the physical state of the waste. Liquid wastes receive the maximum score, while scores for sludges and solids are reduced.

The pathways category rating is based on evidence of contaminant migration or an evaluation of the highest potential (worst case) for contaminant migration along one of three pathways: surface-water migration, flooding, and groundwater migration. If evidence of contaminant migration exists, the category is given a subscore of 80 to 100 points. For indirect evidence, 80 points are assigned, and for direct evidence, 100 points are assigned. If no evidence is found, the highest score among the three possible routes is used. The three pathways are evaluated and the highest score among all four of the potential scores is used.

The scores for each of the three categories are added together and normalized to a maximum possible score of 100. Then the waste management practice category is scored. Scores for sites with no containment are not reduced. Scores for sites with limited containment can be reduced by 5 percent. If a site is contained and well managed, its score can be reduced by 90 percent. The final site score is calculated by applying the waste management practices category factory to the sum of the scores for the other three categories.

1. RECEPTORS CATEGORY

Rating Factors	Rating Scale Levels 0	1	2	3	Multiplier
A. Population within 1,000 feet (includes on-base facilities)	0	1-25	26-100	Greater than 100	4
B. Distance to nearest water well	Greater than 3 miles	1 to 3 miles	3,001 feet to 1 mile	0 to 3,000 feet	10
C. Land Use/Zoning (within 1-mile radius)	Completely remote (zoning not applicable)	Agricultural	Commercial or Industrial	Residential	3
D. Distance to installation boundary	Greater than 2 miles	1 to 2 miles	1,001 feet to 1 mile	0 to 1,000 feet	6
E. Critical environments (within 1-mile radius)	Not a critical environment	Natural areas	Pristine natural areas; minor wetlands; preserved areas; presence of economically important natural resources susceptible to contamination	Major habitat of an endangered or threatened species; presence of recharge area; major wetlands	10
F. Water quality/use designation of nearest surface water body	Agricultural or Industrial use	Recreation, propagation and management of fish and wildlife	Shellfish propagation and harvesting	Potable water supplies	6
G. Ground-water use of uppermost aquifer	Not used, other sources readily available	Commercial, industrial, or irrigation, very limited other water sources	Drinking water, municipal water available	Drinking water, no municipal water available; commercial, industrial, or irrigation, no other water source available	9
H. Population served by surface water supplies within 3 miles downstream of site	0	1-15	51-1,000	Greater than 1,000	6
I. Population served by aquifer supplies within 3 miles of site	0	1-50	51-1,000	Greater than 1,000	6

II. WASTE CHARACTERISTICS

A-1 Hazardous Waste Quantity

S = Small quantity (5 tons or 20 drums of liquid)
M = Moderate quantity (5 to 20 tons or 21 to 85 drums of liquid)
L = Large quantity (?0 tons or 85 drums of liquid)

A-2 Confidence Level of Information

C = Confirmed confidence level (minimum criteria below)

- o Verbal reports from interviewer (at least 2) or written information from the records
- o Knowledge of types and quantities of wastes generated by shops and other areas on base

S = Suspected confidence level

- o No verbal reports or conflicting verbal reports and no written information from the records
- o Logic based on a knowledge of the types and quantities of hazardous wastes generated at the base, and a history of past waste disposal practices indicate that these wastes were disposed of at a site

A-3 Hazard Rating

Rating Factors	Rating Scale Levels			
	0	1	2	3
Toxicity	Sax's Level 0	Sax's Level 1	Sax's Level 2	Sax's Level 3
Ignitability	Flash point greater than ?00°F	Flash point at 140°F to ?00°F	Flash point at 80°F to 140°F	Flash point less than 80°F
Radioactivity	At or below background levels	1 to 3 times background levels	3 to 5 times background levels	Over 5 times background levels

Use the highest individual rating based on toxicity, ignitability and radioactivity and determine the hazard rating.

Hazard Rating	Points
High (H)	3
Medium (M)	2
Low (L)	1

II. WASTE CHARACTERISTICS--Continued

Waste Characteristics Matrix

Point Rating	Hazardous Waste Quantity	Confidence Level of Information	Hazard Rating
100	L	C	H
80	L	C	M
	M	C	H
70	L	S	H
60	S	C	H
	M	C	M
50	L	S	M
	L	C	L
	M	S	H
	S	C	M
40	S	S	H
	M	S	M
	M	C	L
	L	S	L
30	S	C	L
	M	S	L
	S	S	M
20	S	S	L

Notes:
For a site with more than one hazardous waste, the waste quantities may be added using the following rules:

Confidence Level

- o Confirmed confidence levels (C) can be added.
- o Suspected confidence levels (S) can be added.
- o Confirmed confidence levels cannot be added with suspected confidence levels.

Waste Hazard Rating

- o Wastes with the same hazard rating can be added.
- o Wastes with different hazard ratings can only be added in a downgrade mode, e.g., MCM + SCH = LCM if the total quantity is greater than 20 tons.

Example: Several wastes may be present at a site, each having an MCM designation (60 points). By adding the quantities of each waste, the designation may change to LCM (80 points). In this case, the correct point rating for the waste is 80.

B. Persistence Multiplier for Point Rating

Persistence Criteria	Multiply Point Rating From Part A by the Following
Metals, polycyclic compounds, and halogenated hydrocarbons	1.0
Substituted and other ring compounds	0.9
Straight chain hydrocarbons	0.8
Easily biodegradable compounds	0.4

C. Physical State Multiplier

Physical State	Multiply Point Total From Parts A and B by the Following
Liquid	1.0
Sludge	0.75
Solid	0.50

III. PATHWAYS CATEGORY

A. Evidence of Contamination

Direct evidence is obtained from laboratory analyses of hazardous contaminants present above natural background levels in surface water, ground water, or air. Evidence should confirm that the source of contamination is the site being evaluated.

Indirect evidence might be from visual observation (i.e., leachate), vegetation stress, sludge deposits, presence of taste and odors in drinking water, or reported discharges that cannot be directly confirmed as resulting from the site, but the site is greatly suspected of being a source of contamination.

B-1 Potential for Surface Water Contamination

Rating Factors	Rating Scale Levels 0	1	2	3	Multiplier
Distance to nearest surface water (includes drainage ditches and storm sewers)	Greater than 1 mile	2,001 feet to 1 mile	501 feet to 2,000 feet	0 to 500 feet	8
Net precipitation	Less than -10 inches	-10 to +5 inches	+5 to +20 inches	Greater than +20 inches	6
Surface erosion	None	Slight	Moderate	Severe	8
Surface permeability	0% to 15% clay ($>10^{-2}$ cm/sec)	15% to 30% clay (10^{-2} to 10^{-4} cm/sec)	30% to 50% clay (10^{-4} to 10^{-6} cm/sec)	Greater than 50% clay ($>10^{-6}$ cm/sec)	6
Rainfall intensity based on 1-year 24-hour rainfall (Thunderstorms)	<1.0 inch 0-5 0	1.0 to 2.0 inches 6-35 30	2.1 to 3.0 inches 36-49 60	>3.0 inches >50 100	8

B-2 Potential for Flooding

Floodplain	Beyond 100-year floodplain	In 100-year floodplain	In 10-year floodplain	Floods annually	1

B-3 Potential for Ground-Water Contamination

Depth to ground water	Greater than 500 feet	50 to 500 feet	11 to 50 feet	0 to 10 feet	8
Net precipitation	Less than -10 inches	-10 to +5 inches	+5 to + 20 inches	Greater than +20 inches	6
Soil permeability	Greater than 50% clay ($>10^{-6}$ cm/sec)	30% to 50% clay (10^{-4} to 10^{-6} cm/sec)	15% to 30% clay (10^{-2} to 10^{-4} cm/sec)	0% to 15% clay ($<10^{-2}$ cm/sec)	8

B-3 Potential for Ground-Water Contamination--Continued

Rating Factors	Rating Scale Levels 0	1	2	3	Multiplier
Subsurface flows	Bottom of site greater than 5 feet above high ground-water level	Bottom of site occasionally submerged	Bottom of site frequently submerged	Bottom of site located below mean ground-water level	8
Direct access to ground water (through faults, fractures, faulty well casings, subsidence, fissures, etc.)	No evidence of risk	Low risk	Moderate risk	High risk	8

IV. WASTE MANAGEMENT PRACTICES CATEGORY

A. This category adjusts the total risk as determined from the receptors, pathways, and waste characteristics categories for waste management practices and engineering controls designed to reduce this risk. The total risk is determined by first averaging the receptors, pathways, and waste characteristics subscores.

B. Waste Management Practices Factor

The following multipliers are then applied to the total risk points (from A):

Waste Management Practice	Multiplier
No containment	1.0
Limited containment	0.95
Fully contained and in full compliance	0.10

Guidelines for fully contained:

Landfills:

- o Clay cap or other impermeable cover
- o Leachate collection system
- o Liners in good condition
- o Adequate monitoring wells

Surface Impoundments:

- o Liners in good condition
- o Sound dikes and adequate freeboard
- o Adequate monitoring wells

Spills:

- o Quick spill cleanup action taken
- o Contaminated soil removed
- o Soil and/or water samples confirm total cleanup of the spill

Fire Protection Training Areas:

- o Concrete surface and berms
- o Oil/water separator for pretreatment of runoff
- o Effluent from oil/water separator to treatment plant

General Note: If data are not available or known to be complete the factor ratings under items I-A through I, III-B-1, or III-6-3, then leave blank for calculation of factor score and maximum possible score.

CNR122

Appendix C
Site HARM Rating Forms

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 1, Central Hazardous Waste Storage Area

LOCATION Northeast corner of Building 1131

DATE OF OPERATION OR OCCURRENCE

OWNER/OPERATOR Portland International Airport Air National Guard Installation, Portland, Oregon

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	0	4	0	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	2	3	6	9
D. Distance to installation boundary	1	6	6	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	1	9	9	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	57	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 32

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

1.0 X 60 = 60

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

1.0 X 60 = 60

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	0	8	0	24
Net precipitation	3	6	18	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	1	8	8	24
		Subtotals	32	108

Subscore (100 X factor score subtotal/maximum score subtotal) 30

2. Flooding

Flooding	1	1	1	3

Subscore (100 X factor score/3) 33

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	0	8	0	24
Direct access to ground water	0	8	0	24
		Subtotals	44	114

Subscore (100 X factor score subtotal/maximum score subtotal) 39

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 39

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	32
Waste Characteristics	60
Pathways	39
Total 131 divided by 3 =	44
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

44 X 1.0 = 44

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 2, Civil Engineering Hazardous Material Storage Area

LOCATION Adjacent to Building 1123

DATE OF OPERATION OR OCCURRENCE From 1964

OWNER/OPERATOR Portland International Airport Air National Guard Installation, Portland, Oregon

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	0	4	0	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	2	3	6	9
D. Distance to installation boundary	1	6	6	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	1	9	9	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	57	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 32

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 50

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

1.0 X 50 = 50

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

1.0 X 50 = 50

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	0	8	0	24
Net precipitation	3	6	18	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	1	8	8	24
		Subtotals	32	108

Subscore (100 X factor score subtotal/maximum score subtotal) 30

2. Flooding | 1 | 1 | 1 | 3

Subscore (100 X factor score/3) 33

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	0	8	0	24
Direct access to ground water	0	8	0	24
		Subtotals	44	114

Subscore (100 X factor score subtotal/maximum score subtotal) 39

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 39

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors 32
Waste Characteristics 50
Pathways 39

Total 121 divided by 3 = 40
Gross Total Sc

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

40 x 1.0 = 40

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE: Site No. 3, Hush House Area

LOCATION: Hannis Street

DATE OF OPERATION OR OCCURRENCE:

OWNER/OPERATOR: Portland International Airport Air National Guard Installation, Portland, Oregon

COMMENTS/DESCRIPTION:

SITE RATED BY: Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	0	4	0	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	2	3	6	9
D. Distance to installation boundary	1	6	6	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	1	9	9	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	57	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal): 32

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large): M
2. Confidence level (C = confirmed, S = suspected): C
3. Hazard rating (H = high, M = medium, L = low): M

Factor Subscore A (from 20 to 100 based on factor score matrix): 60

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

1.0 X 60 = 60

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

1.0 X 60 = 60

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	0	8	0	24
Net precipitation	3	6	18	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	1	8	8	24
		Subtotals	32	180

Subscore (100 X factor score subtotal/maximum score subtotal) 30

2. Flooding

Flooding	1	1	1	3

Subscore (100 X factor score/3) 33

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	0	8	0	24
Direct access to ground water	0	8	0	24
		Subtotals	44	114

Subscore (100 X factor score subtotal/maximum score subtotal) 39

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 39

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	32
Waste Characteristics	60
Pathways	39
Total 131 divided by 3 =	44
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

44 x 1.0 = 44

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE: Site No. 4, Main Drainage Ditch

LOCATION:

DATE OF OPERATION OR OCCURRENCE: From 1964

OWNER/OPERATOR: Portland International Airport Air National Guard Installation, Portland, Oregon

COMMENTS/DESCRIPTION:

SITE RATED BY: Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	0	4	0	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	2	3	6	9
D. Distance to installation boundary	1	6	6	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	1	9	9	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	57	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal): 32

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large): L
2. Confidence level (C = confirmed, S = suspected): C
3. Hazard rating (H = high, M = medium, L = low): M

Factor Subscore A (from 20 to 100 based on factor score matrix): 80

B. Apply persistance factor
Factor Subscore A X Persistance Factor = Subscore B

1.0 x 80 = 80

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

1.0 x 80 = 80

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	0	8	0	24
Net precipitation	3	6	18	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	1	8	8	24
		Subtotals	32	108

Subscore (100 X factor score subtotal/maximum score subtotal) 30

2. Flooding | 1 | 1 | 1 | 3

Subscore (100 X factor score/3) 33

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	0	8	0	24
Direct access to ground water	0	8	0	24
		Subtotals	44	114

Subscore (100 X factor score subtotal/maximum score subtotal) 39

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 39

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors 32
Waste Characteristics 80
Pathways 39

Total 151 divided by 3 = 50
Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

50 X 1.0 = 50

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE: Site No. 5, Age Maintenance Shop, USAF

LOCATION: Adjacent to Building 1225

DATE OF OPERATION OR OCCURRENCE: 1964

OWNER/OPERATOR: Portland International Airport Air National Guard Installation, Portland, Oregon

COMMENTS/DESCRIPTION:

SITE RATED BY: Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	0	4	0	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	2	3	6	9
D. Distance to installation boundary	1	6	6	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	1	9	9	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	57	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal): 32

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large): S
2. Confidence level (C = confirmed, S = suspected): C
3. Hazard rating (H = high, M = medium, L = low): M

Factor Subscore A (from 20 to 100 based on factor score matrix): 50

B. Apply persistance factor
Factor Subscore A X Persistence Factor = Subscore B

0.9 X 50 = 45

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

1.0 X 50 = 50

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	0	8	0	24
Net precipitation	3	6	18	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	1	8	8	24
		Subtotals	32	108

Subscore (100 X factor score subtotal/maximum score subtotal) 30

2. Flooding

	1	1	1	3

Subscore (100 X factor score/3) 33

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	0	8	0	24
Direct access to ground water	0	8	0	24
		Subtotals	44	114

Subscore (100 X factor score subtotal/maximum score subtotal) 39

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 39

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	32
Waste Characteristics	50
Pathways	39
Total 121 divided by 3 =	40
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

40 X 1.0 = 40

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 7, Burn Pit Area

LOCATION Carl Ave

DATE OF OPERATION OR OCCURRENCE 1957-1978

OWNER/OPERATOR Portland International Airport Air National Guard Installation, Portland, Oregon

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Material Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	0	4	0	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	2	3	6	9
D. Distance to installation boundary	1	6	6	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	1	6	6	18
G. Ground water use of uppermost aquifer	1	9	9	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	0	6	0	18
		Subtotals	57	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 32

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 80

B. Apply persistance factor
Factor Subscore A X Persistence Factor = Subscore B

1.0 X 80 = 80

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

1.0 X 80 = 80

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	0	8	0	24
Net precipitation	3	6	18	18
Surface erosion	0	8	0	24
Surface permeability	1	6	6	18
Rainfall intensity	1	8	8	24
		Subtotals	32	108

Subscore (100 X factor score subtotal/maximum score subtotal) 30

2. Flooding

Flooding	1	1	1	3

Subscore (100 X factor score/3) 33

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	2	6	12	18
Soil permeability	2	8	16	24
Subsurface flows	0	8	0	24
Direct access to ground water	0	8	0	24
		Subtotals	44	114

Subscore (100 X factor score subtotal/maximum score subtotal) 39

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 39

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	32
Waste Characteristics	80
Pathways	39
Total 151 divided by 3 =	50
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

50 X 1.0 = 50

APPENDIX D
ANALYSIS OF OIL SAMPLES
NORTH BEND AIR NATIONAL GUARD STATION

Environmental Laboratory

Date: October 1, 1984

Invoice No.: C32375

Subject: Analysis of oil samples from the Oregon Air National Guard, North Bend, Oregon. The samples were received September 27, 1984, and assigned reference Nos. 4918-4919. Values are given as ug/g (parts per million).

Sample ID	PCB's
East transformer	BMDL
Center transformer	BMDL

Notes: BMDL indicates below method detection limit
Method detection limit = 5 ppm

All tests are performed in accordance with current Environmental Protection Agency guidelines as published in the Federal Register.

The information shown on this sheet is test data only and no interpretation is intended or implied.

Samples will be retained 30 days unless otherwise requested.

Reported by: _____
Theresa Bousquet

ct/CVLAB/104

Environmental Laboratory

Date: September 19, 1984

Project/Invoice No.: C32309

Subject: Analysis of an oil sample from the Oregon Air National Guard, North Bend, Oregon. The sample was received September 17, 1984, and assigned reference No. 4681. Values are given as micrograms per gram or parts per million.

Sample	PCB's
North Bend	BMDL

BMDL Indicates below method detection limit.
Method detection limit = 5 ppm.

All tests are performed in accordance with current Environmental Protection Agency guidelines as published in the Federal Register.

The information shown on this sheet is test data only and no interpretation is intended or implied.

Samples will be retained 30 days unless otherwise requested.

Reported by: _____
Theresa Bousquet

ct/CVLAB/012-3

CH2M HILL
Engineers
Planners
Economists
Scientists

Analytical Laboratory

Date: June 4, 1985

Invoice No.: C33121

Subject: Analysis of oil samples from the Oregon Air National Guard, Bend, Oregon. The samples were received June 3, 1985, and assigned reference nos. 9339-9341. Values are expressed as mg/kg or parts per million.

Sample	PCB'S
#1	BMDL
#2	BMDL
#3	BMDL

BMDL indicates "below method detection limit".
Method detection limit for PCB's = 5 mg/kg.

All tests are performed in accordance with current Environmental Protection Agency guidelines as published in the Federal Register.

The information shown on this sheet is test data only and no interpretation is intended or implied.

Samples will be retained 30 days unless otherwise requested.

Reported by: Theresa Bousquet
Theresa Bousquet

kje/CVLAB/130

APPENDIX E
RESUMES OF SEARCH TEAM MEMBERS

JODY C. MOONEY

EDUCATION

B.S., chemistry, University of Maryland, 1975

EXPERIENCE

Eleven years of experience in hazardous waste and environmental science fields. Experience includes research in organic chemistry (polythiol-ene) and management for a treatment/storage/disposal (TSD) facility. As an associate chemist, performed analysis of inorganic and organic parameters of wastewater samples. Has extensive knowledge of state and federal DOT, RCRA and TSCA regulations on hazardous waste.

EMPLOYMENT

Dynamac Corporation (1986-present): Staff Scientist

Responsibilities include site surveys and records searches for the Phase I portion of the Installation Restoration Program for the Air National Guard. Efforts include risk assessment, site prioritization and remedial action recommendations. Participated in the evaluation of a wastewater treatment plant.

Transviron Incorporated (1984-1985): Environmental Scientist

Prepared proposals for various remedial investigations and feasibility studies (including NUS subcontract award) and supervised field activities relating to investigations and cleanups. Also responsible for hazardous waste management programs set up for commercial clients.

Atlantic Coast Environmental, Inc. (1983-1984): Director of Chemical Services

Planned, directed, and controlled the activities of two operation managers and one technical supervisor for a TSD facility. Supervised facility laboratory operation and assisted clients in chemical disposal problems. Chemical advisor to emergency coordinator of chemical spills.

Browning-Ferris Industries, Inc. (1982-1983): Chemist

Responsible for assuring that the facility (Quarantine Road) operated in compliance with state, local, and federal regulations. Managed the East Coast Regional Environmental Laboratory. Developed field procedures for groundwater monitoring program. Responsible for sampling analysis, treatment, and bringing six lagoons into compliance for discharge with NPDES permit.

Hittman Associates, Inc. (1980-1982): Associate Chemist

Performed analysis of inorganic and organic parameters of wastewater samples. Organized supplies and sample shipment for Exxon Donor Solvent Program. As project scientist, conducted a wastewater study at Bush River, Maryland. Laboratory representative on the safety committee.

Alcolac, Inc. (1979-1980): Quality Control Laboratory Technician

W.R. Grace, Inc., Washington Research Center (1975-1978): Research Technician (Organic)

PROFESSIONAL AFFILIATIONS

The American Society for Testing and Materials -- D-34 Committee on Waste Disposal
The American Chemical Society -- Maryland Local Section

TIMOTHY N. GARDNER

Environmental Scientist

EDUCATION

M.A., Environmental Biology, Hood College
B.S., Forestry/Resource Management, West Virginia University

EXPERIENCE

Mr. Gardner has five years of technical experience in environmental control and research, with emphasis on risk assessment, chemical safety, radiation safety, hazardous waste management (chemical and radiologic), and activated carbon filtration research. His past responsibilities include site risk assessment, chemical and radioactive waste pickup and storage for disposal at a large cancer research facility, and chemical and radioactive spill control, as well as safety surveys and technical assistance in activated carbon desorption research.

EMPLOYMENT

Dynamac Corporation (1984-Present): Staff Scientist

At Dynamac, Mr. Gardner's responsibilities include site surveys and records searches for the Phase I portion of the Installation Restoration Program (IRP) for various Air National Guard Bases. Efforts include risk assessment, site prioritization, and remedial action recommendations. He has also been a contributing author for a closure-post closure plan for a hazardous waste landfill at Clovis AFB, plans and specifications for the removal of asbestos at several Air Force White Alice sites in Alaska, and the update and revision of a DLA regulation for "Disposal of Unwanted Radioactive Material."

NCI-Frederick Cancer Research Facility (1981-1984): Lab Technician

Mr. Gardner worked in radiation and chemical safety as well as environmental research. His responsibilities included monitoring personal and environmental air quality at work areas where free iodinations occurred, monitoring work areas and equipment for isotope contamination, periodic surveys to monitor compliance with NRC safety regulations, isotope inventory control, transfer of isotopes between licenses, and periodic calibration and maintenance of survey instruments. He was also responsible for radioactive and chemical waste pickup and storage for disposal, and served as an advisor for safety-related matters pertinent to radiation and radioactive waste, chemical safety, and industrial hygiene. In the environmental research division, he was involved in activated carbon desorption studies involving the use of analytic laboratory equipment.

PROFESSIONAL AFFILIATIONS

American Tree Farm Association
Hardwood Research Council
West Virginia Forestry Association

NATASHA M. BROCK

EDUCATION

Graduate work, civil/environmental engineering, University of Maryland, 1987-present
Graduate work, civil/environmental engineering, University of Delaware, 1985-1986
B.S. (cum laude), environmental science, University of the District of Columbia, 1984
Undergraduate work, biology, The American University, 1978-1980

CERTIFICATION

Health & Safety Training Level C

EXPERIENCE

Three years' experience in the environmental and hazardous waste field. Work performed includes remedial investigations/feasibility studies, RCRA facility assessments, comprehensive monitoring evaluations, and remedial facility investigations. Helped develop and test biological and chemical processes used in minimization of hazardous and sanitary waste generation. Researched multiple substrate degradation using aerobic and anaerobic organisms.

EMPLOYMENT

Dynamac Corporation (1987-present): Environmental Scientist

In working for Dynamac's Hazardous Materials Technical Center (HMTC), performs Preliminary Assessments, Remedial Investigations and Feasibility Studies (PA/RI/FS) under the Air National Guard Installation Restoration Program. Specifically involved in determining rates and extent of contamination, recommending groundwater monitoring procedures, and soil sampling and analysis procedures. In the process of preparing standard operating procedure manuals for quick remedial response to site spills and releases, and PA/RI/FS.

C.C. Johnson & Malhotra, P.C. (1986-1987): Environmental Scientist

Involved as part of a team in performing Remedial Investigations/Feasibility Studies (RI/FS) for EPA Regions I and IV under Resource Conservation and Recovery Act (RCRA) work assignments for REM II projects. Participated on a team involved in RCRA Facility Assessments (RFAs), Comprehensive Monitoring Evaluations (CMEs), and Remedial Facility Investigations (RFIs) for EPA work assignments under RCRA for REM III projects in Regions I and IV. Work included solo oversight observations of field sampling and facility inspections. Additional responsibilities included promotion work, graphic layout, data entry-quality check for various projects. Certified Health & Safety Training Level C.

Work Force Temporary Services (1985-1986): Research Scientist

In working for DuPont's Engineering Test Center, helped in the development and testing of laboratory-scale biological and chemical processes for a division whose main purpose was to reduce the amount of hazardous waste generated. Also worked for Hercules, Inc., with a group involved in polymer use for wastewater treatment for clients in various industrial fields. Specifically involved in product consultation, troubleshooting, and product development.

National Oceanic and Atmospheric Administration (1982-1984): Research Assistant

Involved with an information gathering and distribution center of weather impacts worldwide. Specifically involved in data collection, distribution of data to clients, assessment production and special reports.

INSTALLATION RESTORATION PROGRAM

REMEDIAL INVESTIGATION WORK PLAN

DCN: Portland 4 43399
Title: RI Work Plan
ARF Final 01 Apr 1996

142nd FIGHTER GROUP
OREGON AIR NATIONAL GUARD
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

APRIL 1996

Prepared For
HQ ANG/CEVR
ANDREWS AFB, MARYLAND

INSTALLATION RESTORATION PROGRAM

REMEDIAL INVESTIGATION WORK PLAN

142nd FIGHTER GROUP
OREGON AIR NATIONAL GUARD
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

APRIL 1996

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ANDREWS AFB, MARYLAND

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Prepared By

Operational Technologies Corporation
683 Emory Valley Road
Oak Ridge, TN 37830

8051-001

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LIST OF ACRONYMS

AGE	Aerospace Ground Equipment
ARARs	Applicable or Relevant and Appropriate Requirements
ASTM	American Society for Testing and Materials
AWQC	Ambient Water Quality Criteria
Bldg.	Building
Blvd	Boulevard
bgs	Below Ground Surface
BRA	Baseline Risk Assessment
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
COPC	Contaminant of Potential Concern
CWA	Clean Water Act
DD	Decision Document
DEM	Data Management and Analytical Data Evaluation Manager
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
DQO	Data Quality Objectives
DPT	Direct Push Technology
EMS	Electromagnetic Survey
EO	Executive Order
EPA	Environmental Protection Agency
F	Fahrenheit
FG	Fighter Group
FS	Feasibility Study
ft/ft	foot/foot
FTL	Field Team Leader
g	gram
GC/MS	Gas Chromatograph/Mass Spectrometer
GPR	Ground Penetrating Radar
HARM	Hazardous Assessment Rating Methodology
HAZWRAP	Hazardous Waste Remedial Actions Program
HMTA	Hazardous Materials Transportation Act
HMTC	Hazardous Materials Technical Center
HSP	Health and Safety Plan
HSWA	Hazardous and Solid Waste Amendments
HQ ANG/CEVR	Headquarters Air National Guard
IAG	Interagency Agreement

LIST OF ACRONYMS (Continued)

IDW	Investigation Derived Waste
III	Three
IRP	Installation Restoration Program
LEL	Lower explosive limit
MAG	Magnetometer
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
mg/kg	milligram/kilogram
mg/L	milligram/liter
MSDS	Material Safety Data Sheet
MSL	Mean Sea Level
MW	Monitoring Well
NAAQS	National Primary and Secondary Ambient Air Quality Standards
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	No Further Action
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
OANG	Oregon Air National Guard
ODEQ	Oregon Department of Environmental Quality
OSHA	Occupational Safety and Health Administration
PA	Preliminary Assessment
PAG	Project Action Goal
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PHC	Petroleum Hydrocarbon
PIA	Portland International Airport
PID	Photoionization Detector
PM	Project Manager
POL	Petroleum, Oil, and Lubricants
ppb	parts per billion
PPE	Personal Protective Equipment
PPM	priority pollutant metals
ppm	parts per million
PVC	Polyvinyl chloride
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
R-TIS	Real-Time Interpretation System
RA	Removal Action
RBC	Risk Base Concentration
RCRA	Resource Conservation and Recovery Act

LIST OF ACRONYMS (Continued)

RI	Remedial Investigation
RID	Regional Information Document
SAIC	Science Applications International Inc.
SARA	Superfund Amendments and Reauthorization Act
SB	Soil Boring
SDWA	Safe Drinking Water Act
SI	Site Investigation
SLF	Sanitary Landfill
SOP	Standard Operating Procedure
SPT	Standard Penetration Test
SSO	Site Safety Office
SVOCs	Semivolatile Organic Compounds
TBC	To be considered
TCLP	Toxicity Characteristic Leaching Procedure
TFM	Total Field Magnetic
TPH	Total Petroleum Hydrocarbons
TSD	Treatment, Storage, and Disposal
ug/kg	micrograms/kilogram
μg/L	micrograms/liter
USAF	United States Air Force
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
UST	Underground storage tank
VOCs	Volatile Organic Compounds
WMSQS	Washington Marine Sediment Quality Standards
WP	Work Plan

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SECTION 1.0 INTRODUCTION

The Department of Defense (DoD) has developed a program to identify and evaluate sites on DoD property where contamination may be present due to past spills or hazardous waste disposal practices. This program is the Installation Restoration Program (IRP), and its purpose is to confirm the existence or absence of suspected contamination and to control hazards to health, welfare, or the environment that may result from their presence. As part of this program, Headquarters Air National Guard (HQ ANG/CEVR) has entered into an interagency agreement (IAG) No. 1489-1489-A1 with the Department of Energy (DOE) under which DOE will provide technical assistance for the implementation of the ANG/CEVR IRP and related activities. Lockheed Martin Energy Systems' Hazardous Waste Remedial Actions Program (HAZWRAP) has been assigned the responsibility for managing this effort under the IAG.

This Remedial Investigation (RI) Work Plan (WP) was developed as part of the IRP being conducted at the 142nd Fighter Group (FG), hereinafter referred to as the Base, located at Portland International Airport (PIA) (Figure 1.1). The purpose of this WP is to present overall and site-specific technical, and management approaches to use for completing the IRP for sites designated for further study at the Base.

The ten IRP sites, shown in Figure 1.2, addressed by this RI include:

IRP Site No. 1:	Central Hazardous Waste Storage Area
IRP Site No. 2:	Civil Engineering Hazardous Material Storage Area
IRP Site No. 3:	Hush House Area
IRP Site No. 4:	Main Drainage Ditch
IRP Site No. 5:	AGE Maintenance Shop
IRP Site No. 7:	Burn Pit Area
IRP Site No. 8:	Sanitary Landfill
IRP Site No. 9:	Petroleum, Oil, and Lubricant (POL) Facility
IRP Site No. 10:	Equipment Washrack
IRP Site No. 11:	Washrack West of Building 250

In addition to the above referenced sites, Base background information, regarding soil and groundwater, will be collected by installing monitoring wells and soil borings.

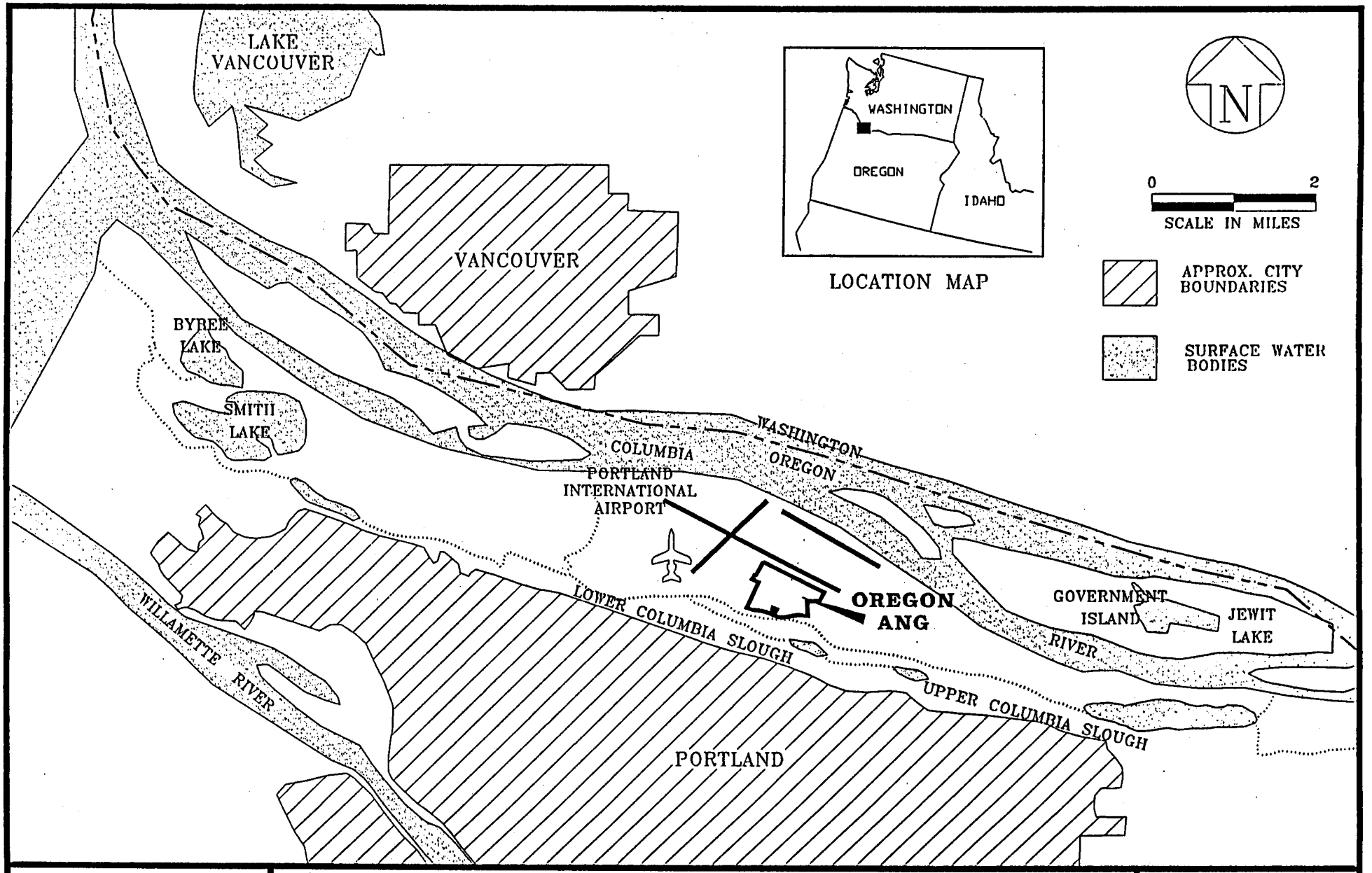

FIGURE 1.1

PORTLAND\SURF-WTR

SITE LOCATION MAP
142nd FG, Oregon ANG
Portland International Airport
Portland, Oregon

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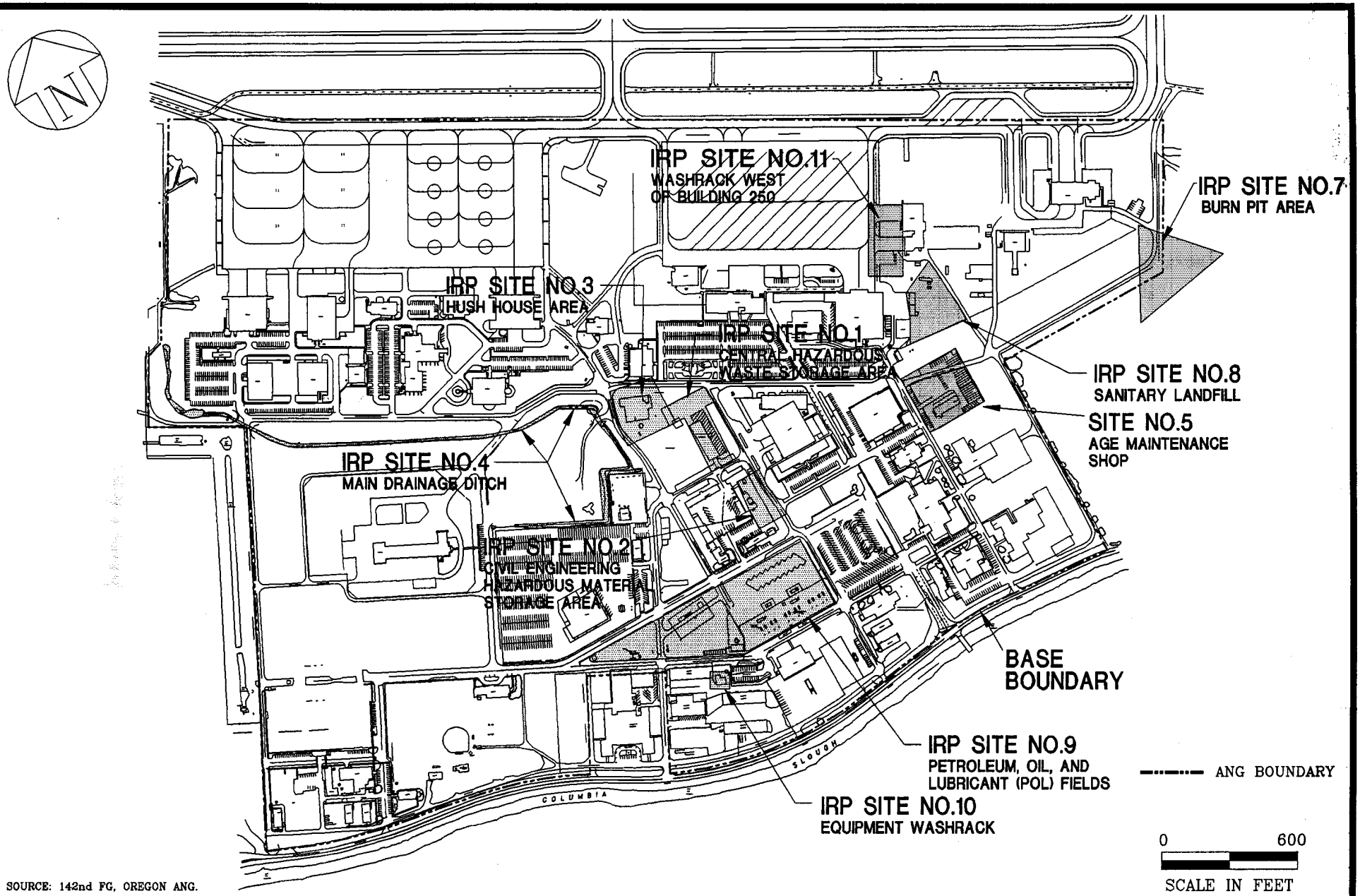
OPERATIONAL TECHNOLOGIES CORPORATION

OCTOBER 1995



SOURCE: 142nd FG, OREGON ANG.

FIGURE 1.2

PL_FIG\ST_SITES

LOCATION OF IRP SITES

142nd FG, Oregon ANG
Portland International Airport
Portland, Oregon

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1.1 PROJECT OBJECTIVES AND SCOPE

Based on the results of the Site Investigation (SI) performed by Science Applications International, Inc. (SAIC) in 1989, ten sites were recommended for further investigation to be conducted by this RI. The purposes of the RI are to:

- Evaluate the nature of contamination;
- Evaluate the vertical and horizontal extent of contamination in soils and groundwater;
- Gather and evaluate the necessary data to support a Feasibility Study (FS) or a Removal Action (RA) as appropriate;
- Prepare Decision Documents (DDs) supporting No Further Action (NFA) as appropriate;
- Support a screening (human health and ecological) risk assessment;
- Identify pathways and potential exposure routes for the screening risk assessment; and
- Characterize site and Base hydrogeology and geology.

The scope of the RI activities addressed by this WP shall include, but not be limited to:

- Soil and groundwater sampling with direct push technology;
- On-site laboratory analysis;
- Off-site laboratory confirmation;
- Electronic data management system for receipt and interpretation of investigation results; and
- Report preparation.

One of the objectives of the RI is to use an on-site analytical laboratory to help provide data about the sites and make real-time decisions regarding the progress of the field investigation. The process will make the field effort more efficient and minimize the time spent waiting on analytical results. Using this process should help complete the remedial investigation field effort in one mobilization and ultimately save on costs. The real-time data will be evaluated and, if necessary, the field program can be modified (within the constraints of available equipment, time, and monies) to help achieve the project objectives.

One of the data quality objectives includes performing analytical procedures and obtaining results that are accurate, precise, and defensible. The field laboratory will be designed and setup to meet these same project data quality objectives; the only difference is it is not a fixed-base laboratory.

1.2 INSTALLATION RESTORATION PROGRAM (IRP) DESCRIPTION

The United States Air Force (USAF), including HQ ANG/CEVR, has engaged in a wide variety of operations dealing with toxic and hazardous materials due to its primary mission in defense of the United States. In order to address this problem, the Defense Environmental Restoration Program (DERP) was established in 1984 to promote and coordinate efforts for the evaluation and clean-up of contamination at DoD installations. On January 23, 1987, Presidential Executive Order (EO) 12580 was issued which assigned the responsibility of carrying out the DERP to the Secretary of Defense. As a result, the IRP was established under the DERP to identify, evaluate, and mitigate past hazardous material disposal sites on DoD properties.

The IRP is focused on conducting remedial measures (as necessary) associated with past DoD activities to ensure that threats to public health are eliminated and to restore natural resources for future use. Activities under the IRP are conducted in phases that parallel the requirements of the U. S. Environmental Protection Agency (USEPA) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

The HQ ANG/CEVR, located at Andrews Air Force Base, Maryland, has ultimate responsibility for the IRP at installations located throughout the country.

1.3 GENERAL INVESTIGATION APPROACH

This RI provides a description of the activities proposed to quantify the horizontal and vertical extent, and the magnitude and extent of contamination at IRP Site Nos. 1 through 5 and 7 through 11, as well as the possible migration of any of the contaminants from the sites. Sediments, surface and subsurface soils, and surface and ground water data will be collected and evaluated to facilitate accomplishing these objectives. In addition, a screening risk assessment will be performed to determine the likelihood of adverse human health and ecological effects, which control decisions about the need for cleanup methods to be used.

1.4 WORK PLAN STRUCTURE

The Work Plan provides a description of the activities proposed for the RI and is organized into fifteen sections and four appendices described below.

Section 1.0 **Introduction**, provides the purpose, scope and structure of the investigation, summarizes the IRP Program, and describes the general investigation approach.

Section 2.0 **Project Management Approach**, describes the project management organization and approach, and the quality and data management procedures proposed for the execution of the project.

Section 3.0 **Facility Background Information**, provides a description and history of the Base, and site-specific information of the ten sites addressed by this investigation. A description of previous IRP investigation activities is also provided.

Section 4.0 **Environmental Setting**, provides pertinent physical details about the setting of the Base.

Section 5.0 **Permits**, describes the permitting process required to perform the field activities for the project.

Section 6.0 **Investigation Approach**, provides the objectives and Data Quality Objectives (DQOs) which apply to the project, as well as the sampling strategy and approach that was used to meet these objectives.

Section 7.0 **Field Investigation Procedures**, describes the field procedures to be utilized during the drilling activities, geophysical surveys, and microwell/monitoring well installation, required for the investigation.

Section 8.0 **Sample Collection Procedures**, describes the sampling procedures to be utilized during the field activities required for the investigation.

Section 9.0 **Summary of Potential ARARs**, provides the Applicable or Relevant and Appropriate Requirements (ARARs) which may potentially impact the project investigative decision process.

Section 10.0 **Risk Assessment**, describes the procedures for conducting a screening risk assessment at each of the sites.

Section 11.0 **Equipment Decontamination Procedures**, describes the equipment decontamination procedures to be utilized during the field activities required for the investigation.

Section 12.0 **Borehole Abandonment Procedures**, describes the borehole abandonment procedures to be utilized during the field activities required for the investigation.

Section 13.0 **Investigative Derived Waste Management**, (IDW) provides the procedures proposed for the handling and disposal of all investigative derived waste produced during field activities.

Section 14.0 **Project Schedules and Deliverables**, describes the proposed project time frame for accomplishing the required RI, the proposed meetings, and the project deliverables.

Section 15.0 **References**, provides a listing of references used in preparation of the RI Work Plan.

Appendix A Presents the Health and Safety Plan (HSP) developed for operations at the Base.

Appendix B Presents the Quality Assurance Project Plan (QAPP), which describes the overall policies, specific quality assurance and quality control requirements, procedures, responsibilities, chain-of-custody, laboratory analyses, and documentation that will be employed during the RI.

Appendix C Presents the Standard Operating Procedures (SOPs) referenced in the RI WP.

Appendix D Presents Material Safety Data Sheets (MSDS) for chemicals of concern identified at the Base.

Appendix E Presents the USEPA Region III risked-based concentrations (RBC) table that states reference doses and carcinogenic potency slopes for 600 chemicals. These references will be used as a baseline during the screening risk assessment.

Appendix F Presents the Field Forms to be utilized during the RI field activities.

SECTION 2.0 PROJECT MANAGEMENT APPROACH

The successful execution of this project lies in a strong, qualified project team. Accordingly, the subcontractor will establish an experienced team of professionals who have performed similar government and industrial activities to be a part of the project team. The project team will be specified and provided to the HAZWRAP Project Manager (PM) as part of the Business and Technical Proposal.

2.1 PROJECT MANAGEMENT ORGANIZATION

The project will be managed and executed by personnel selected by the subcontractor who will ensure that the objectives of the RI are met as defined in the final as negotiated contract. Drilling, analytical laboratory, geophysical survey, and well and boring location surveying support will be provided by subtier subcontractor firms experienced in performing their specific assigned tasks, and which possess the required permits, licenses and accreditations necessary to work in Oregon. The responsibilities of subcontractor personnel who are considered key project personnel are described below:

The Program Manager will be administratively responsible for coordinating resources and priorities for the project and for maintaining an open line of communication with the HAZWRAP Project Manager. Communications with HQ ANG/CEVR will be through the HAZWRAP Project Manager.

The Project Manager (PM) will serve as the principle point of contact with HAZWRAP and the Base. The Project Manager will direct the project team, including field operations, and coordinate all subtier subcontractor support.

The Field Team Leader (FTL) will directly supervise all field operations. Responsibilities will include planning, conducting, and overseeing all field personnel, including subtier subcontractors.

The Quality Assurance/Quality Control (QA/QC) Manager will be responsible for developing standardized quality assurance procedures for this project and for ensuring that effective procedures and controls are implemented to achieve a high level of project accuracy.

The Site Safety Officer (SSO) will be responsible for the safety of all on-site personnel and operations and evaluating any potential unsafe conditions for on-site personnel.

The Data Management and Analytical Data Evaluation Manager (DEM) will be responsible for evaluation of analytical data and to ensure that high quality data is collected. Responsibilities will also include ensuring that proper data tracking and management are implemented to achieve a high level of project data accuracy.

2.2 PROJECT PROCEDURES

An open line of communication will be maintained between the PM and the project team to ensure that all project objectives are met. Samples will be properly collected and identified, with verifiable sample custody being an integral part of the field work. A member of the field team will maintain a bound field logbook in which details of that team's daily field activities will be recorded. All information pertinent to field observations, screening, and sampling will be written legibly in indelible ink. Additional information may be recorded on field forms (i.e., well completion form, sample collection form, etc.) at the discretion of the field team(s). In addition, a Project Logbook will be maintained by the FTL, which will be updated at the end of each day's activities, to compile and detail the activities of all the field crews' accomplishments for that day. The Project Logbook, the crews individual logbooks, and the individual field forms, will be maintained in the project file. During the RI field activities, the following information will also be prepared on a weekly basis and be reported to all field personnel and the HAZWRAP PM:

- Weekly highlights of field findings and activities;
- Cost avoidance procedures; and
- Summary of weekly success/failure and/or lessons learned.

All field activities are further detailed in, and will be carried out in accordance with, the HSP, the QAPP, and the subcontractor's SOPs, presented in Appendices A, B, and C, respectively. The RI project schedule will be included as part of the Technical Business Proposal. A conceptual model for Project RI approach from work plan preparation to preparation of final report is presented in Figure 2.1.

2.3 QUALITY MANAGEMENT

Quality management is the process of ensuring that the proper, legally defensible data is collected. For this project that means ensuring that the RI will provide the information necessary to proceed toward closure. To achieve this goal, all problems encountered during field work will be reported to the FTL, who will contact the subcontractor PM and the HAZWRAP PM.

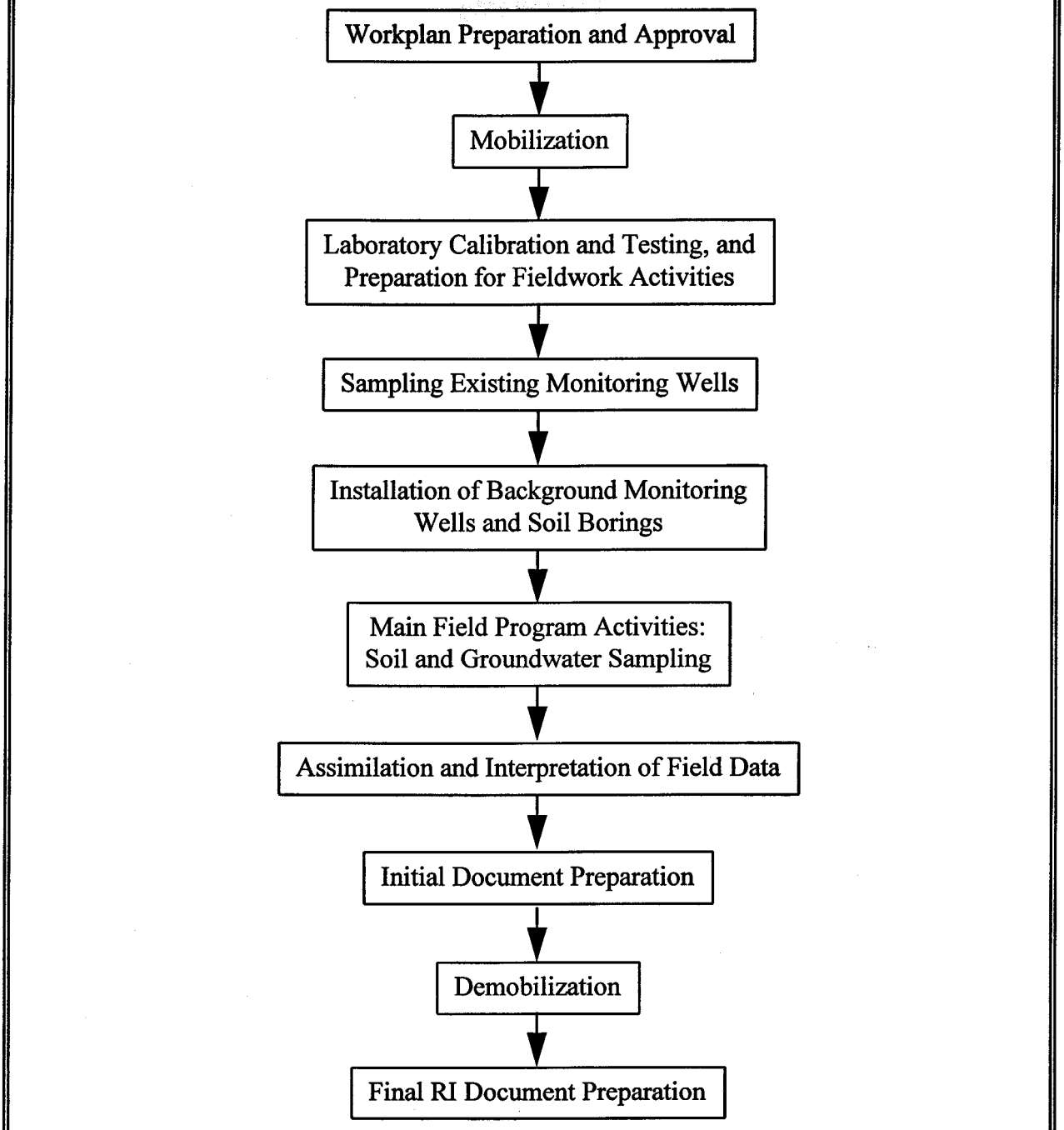

Figure 2.1	**CONCEPTUAL MODEL FOR PROJECT RI APPROACH** **142nd Fighter Group, Oregon Air National Guard** **Portland International Airport, Portland, Oregon**	**OPTECH** **Operational Technologies** **CORPORATION**

Immediate corrective actions will be taken anytime it is deemed necessary. The contractor's QA/QC Manager will be responsible for ensuring all QC procedures are followed for the project. Quality control procedures are further detailed in, and will be carried out in accordance with, the QAPP presented in Appendix B.

2.4 SUBCONTRACT MANAGEMENT

The subcontractor is totally and solely responsible for the cost, schedule, and quality of all work performed under the final negotiated contract, including the work of subtier subcontractors. The project subcontractor will hire subtier subcontractors for the drilling, analytical laboratory, geophysical survey, and well and boring location surveying support. These subcontractors will support the project contractor's efforts at the Base and will be selected through a fair and competitive procurement process. The Field Team Leader will maintain oversight of the subcontractors' completion of specified tasks with respect to technical performance, quality, and adherence to cost and schedule. All subcontractor activity will be in compliance with the HSP, QAPP, and SOPs, presented in Appendices A through C.

2.5 DATA MANAGEMENT

2.5.1 Electronic Data Management

An integrated data management system, using Access™ database, Window's Paintbrush™ software, and a word processing program integrated with Real-Time Interpretation System (R-TIS) software modified for this RI, will be used to compile field laboratory results, field survey data and fixed-base laboratory data into a useable format and produce real-time interpretation of site conditions. The system will be capable of querying the database by analyte, parameter, site, concentrations, matrix, and sample quantities and generating two dimensional maps of each site for visualization of data measurements.

The Access database fields will be modified to contain all analytical methods, complete analyte lists, and appropriate action levels for this RI. The Access database will contain all sample analysis information discussed in Section 10 of the QAPP. Additional information contained within the database will include, but is not limited to:

- Sample X, Y, and Z coordinates;
- Established Project Action Goals;

- A brief description of the sample;
- Where the sample was collected;
- Surface elevation (if applicable);
- Top of casing (if applicable);
- Top of well screen (if applicable);
- Bottom of well screen (if applicable);
- Water level (if applicable);
- Total depth (if applicable) for monitoring well/microwell and soil boring; and
- A brief description of the site.

The DEM will be responsible for the daily maintenance and updating of the database. The PM or a designee will be responsible for oversight of the descriptions included in the database, queries, maps, and reports generated from the R-TIS system. The DEM will be responsible for verifying all measurement entries against the hard copy data, updating the database on a daily basis, and performing daily data backups. The backup data will be stored in a separate location. The analytical laboratories will be responsible for delivering electronic information concurrently with the hard copy results on the sample analysis to the database manager for entry into the database. The DEM is responsible for oversight of database management and laboratory coordination. Data review for analytical compliance is discussed in Sections 9.0 and 10.0 of the QAPP. The DEM will be responsible only for the correctness of the entry of data, not the integrity of the values.

2.5.2 Hard Copy Data Management

The field laboratory must provide hard copies of sample results to the contractor no later than 48 hours after samples are received at the field laboratory. Hard copies of sample results must be provided by the fixed-base laboratory no later than seven days after sample receipt. Complete data packages from the field and fixed-base laboratories that contain all deliverables listed in Tables 10.1 and 10.2 of Appendix B (QAPP) must be received by the contractor within thirty days of sample receipt by the laboratory. All sample results and data packages will be reviewed by the analytical laboratories for correctness and completeness prior to submitting data to the contractor. Evidence of this review must be provided with the data. The subcontractor is responsible for the quality of data generated by both field and fixed-base laboratories and will monitor analytical performance of both laboratories on a daily basis to ensure compliance with analytical methods, the QAPP, the analytical subtier subcontract, and HAZWRAP's DOE/HWP-65/R1. Analytical

data from the field and fixed-base laboratories will be validated according to procedures specified in Section 10.0 of the QAPP.

SECTION 3.0 FACILITY BACKGROUND INFORMATION

3.1 FACILITY DESCRIPTION AND HISTORY

The Base is located on the south side of the PIA in Portland, Oregon. The PIA is located northeast of the city between the Columbia River to the north and the Columbia Slough to the south. The Base occupies approximately 245 acres of land leased from the City of Portland Port Authority.

The Base is bordered on the west by Riverside Country Club and the Peninsula Drainage Canal, and on the north by the PIA. The areas south and east of the Base are designated residential, industrial, and commercial. All IRP sites are located within the confines of the Base, except IRP Site No. 7, the former Burn Pit Area which straddles the southeast Base boundary.

The 142nd FG was opened in 1941 and functioned as an Army Air Base until 1945. Following World War II, the Base was converted to an Air National Guard facility and has maintained that status to the present time. The major support operations performed at the Base that use and dispose of hazardous wastes/hazardous materials include aircraft maintenance, ground maintenance, petroleum, oil, and lubricants (POL) management, and facilities maintenance. These activities generate varying quantities of waste oils, recovered fuels, spent cleaners, solvents, and acids.

3.1.1 Previous IRP Investigation Activities and Documentation

In 1987, under the USAF IRP as implemented by the Air National Guard, a Phase I Record Search was completed and recorded as part of the Preliminary Assessment (PA) Hazardous Materials Training Center (HMTC) (1987). The PA investigation included an on-site visit including interviews with past and present Base employees; the acquisition and analysis of pertinent information and records on the Base's hazardous materials use and waste generation and disposal practices; and the analysis of available geologic, hydrologic, meteorological, and environmental data from federal, state, and local agencies.

As a result, investigators evaluated eight sites on the Base (IRP Site Nos.1 through 8) and ranked six of them in accordance to the USAF Hazardous Assessment Rating Methodology (HARM) protocol. The eight sites evaluated during the PA are as follows:

IRP Site No.1 - Central Hazardous Waste Storage Area
IRP Site No.2 - Civil Engineering Hazardous Material Storage Area
IRP Site No.3 - Hush House Area
IRP Site No.4 - Main Drainage Ditch
IRP Site No.5 - AGE Maintenance Shop
IRP Site No.6 - Washrack West of Building 1355
IRP Site No.7 - Burn Pit Area
IRP Site No.8 - Sanitary Landfill

IRP Site No. 6 was recommended for no further action, and thus, it was not scored during the HARM process. Due to the lack of sufficient information at IRP Site No. 8, this site was not considered in the HARM process.

Subsequent to the PA, field sampling was conducted at selected locations on the Base by R.N. Smith Associates, in 1987 (IRP Site No.4) and by SRH Associates, Inc. in October, 1988 (IRP Site No. 3).

In December of 1988, the Oregon Air National Guard (OANG) reported a Underground Storage Tank (UST) leak at the POL Facility (IRP Site No. 9) to the Oregon Department of Environmental Quality (ODEQ).

In 1989, an SI of the IRP sites identified in the PA (IRP Site Nos. 1 through 5, 7, and 8) as requiring further investigation was implemented by SAIC under a contract with HAZWRAP. The results of the SI are summarized in the Site Investigation Report - Volumes I and II (SAIC, 1991). The SI Report recommended the preparation of a no further action decision document for IRP Site No. 1 soil, IRP Site No. 3, and IRP Site No. 8. Due to the presence of contaminants in soil and groundwater and the lack of sufficient data to completely characterize the sites, further investigation was recommended for IRP Site No. 1 groundwater, IRP Site No. 2, IRP Site No. 4, IRP Site No. 5, and IRP Site No. 7. Based on the previous analytical results from samples collected at IRP Site Nos. 10 and 11 by Base personnel, these two sites were also recommended for further investigation during the RI.

3.1.2 Other Investigation Activities

In April 1995, a Regional Information Document (RID) was prepared by Foster Wheeler Environmental Corporation under a contract with HAZWRAP. The purpose of the RID was to

summarize and evaluate the available information and relate this information to the RI activities to be conducted at the Base and the environmental concerns regarding the Columbia River and the Columbia Slough.

3.2 IRP SITE DESCRIPTIONS

3.2.1 IRP Site No. 1 - Central Hazardous Waste Storage Area

The Central Hazardous Waste Storage Area (IRP Site No. 1) is located on the north side of Building (Bldg.) 1131 depicted on Figure 3.1. IRP Site No. 1 was used as a waste storage area and did not have a containment structure (SAIC, 1991). The surrounding area north of the site is grassy and unpaved. Hampshire Boulevard dissects part of the site on the east side. O'Conner Way borders the site on the north.

Bldg. 1131 is a wooden structure and is currently used as a lawn maintenance equipment storage shed. The asphalt area on the west side of the building is used for temporary storage of electrical transformers and other miscellaneous equipment.

Underground utility lines, including a new storm sewer, are along the eastern portion of the site. Surface water drains off-site through storm drain inlets, located on the north and west sides of the site, into the drainage ditch along Hannis Street and eventually pumps into the Columbia Slough.

3.2.1.1 Waste Disposal History and Previous Investigation

Starting in 1970, IRP Site No. 1 was used as a waste storage area of miscellaneous wastes, including 55-gallon drums of waste oil, solvent, fuels, shop wastes, electrical transformers and capacitors.

Although no spills were reported in the PA Report, stained soils have been observed at the site during the SI (SAIC, 1991).

Subsequent to the PA, four composite soil samples collected from a test pit excavation (Figure 3.1) at the site detected high concentrations of total petroleum hydrocarbons (TPH), 594 milligrams per kilogram (mg/kg) and 12 mg/kg at a depth of 0.5 to 3.5 feet (ft.), respectively (SRH, Inc., 1988). Polychlorinated biphenyls (PCBs) and solvents were not detected above the instrument detection limits in any of the samples (SAIC, 1991).

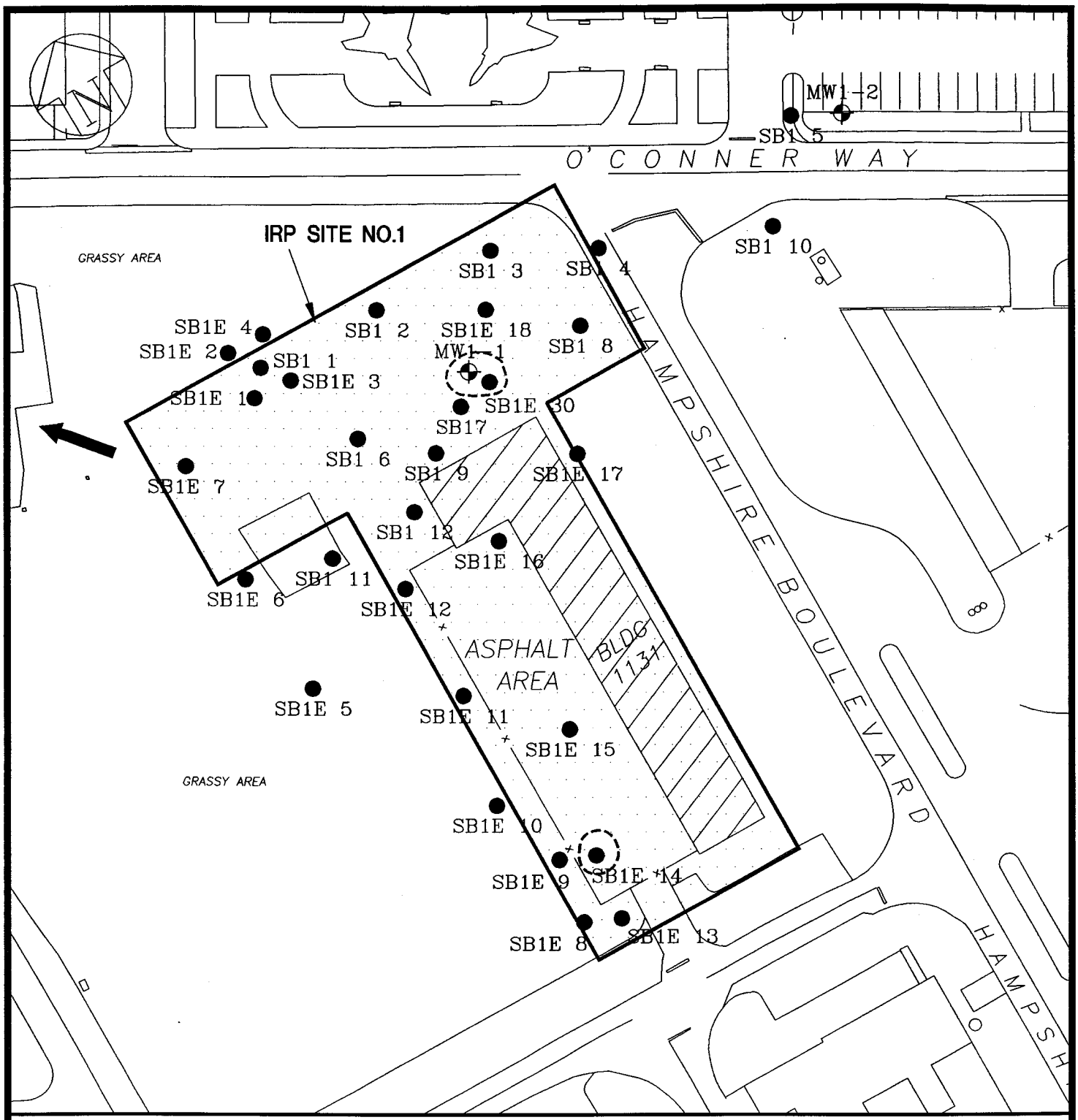

FIGURE 3.1

PL_FIG\ST_1-2

IRP SITE NO.1: EXISTING SAMPLING LOCATIONS

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The SI was conducted in two phases at the site: "fast track" and "expanded", in December 1988 and January 1989, respectively (SAIC, 1991). Thirty-five (35) soil borings were drilled from which 27 soil samples were collected from the unsaturated zone during both phases of the investigations (Figure 3.1). Analytical results indicated PCBs in one sample (SB1-1-1) at a concentration of 0.34 mg/kg. Petroleum hydrocarbons (PHCs) were detected in five samples at levels ranging from 10 to 43 mg/kg (samples: SB1-1-1, SB1-5-2, SB1-7-2, SB1-10-1, and SB1-1-22). Volatile organic compounds (VOCs) were detected in two samples collected near monitoring well MW1-1, which contained bromochloromethane, at concentrations of 1,900 and 190 micrograms per kilogram (μg/kg), respectively (SB1E-20 and SB1E-18, headspace analyses using field gas chromatograph).

Methylene chloride and bromochloromethane were detected in saturated soils at IRP Site No.1. Methylene chloride was detected in three samples with concentrations ranging from 35 to 110 μg/kg. Bromochloromethane was detected in eight samples with a maximum concentration of 12,000 μg/kg (SAIC, 1991).

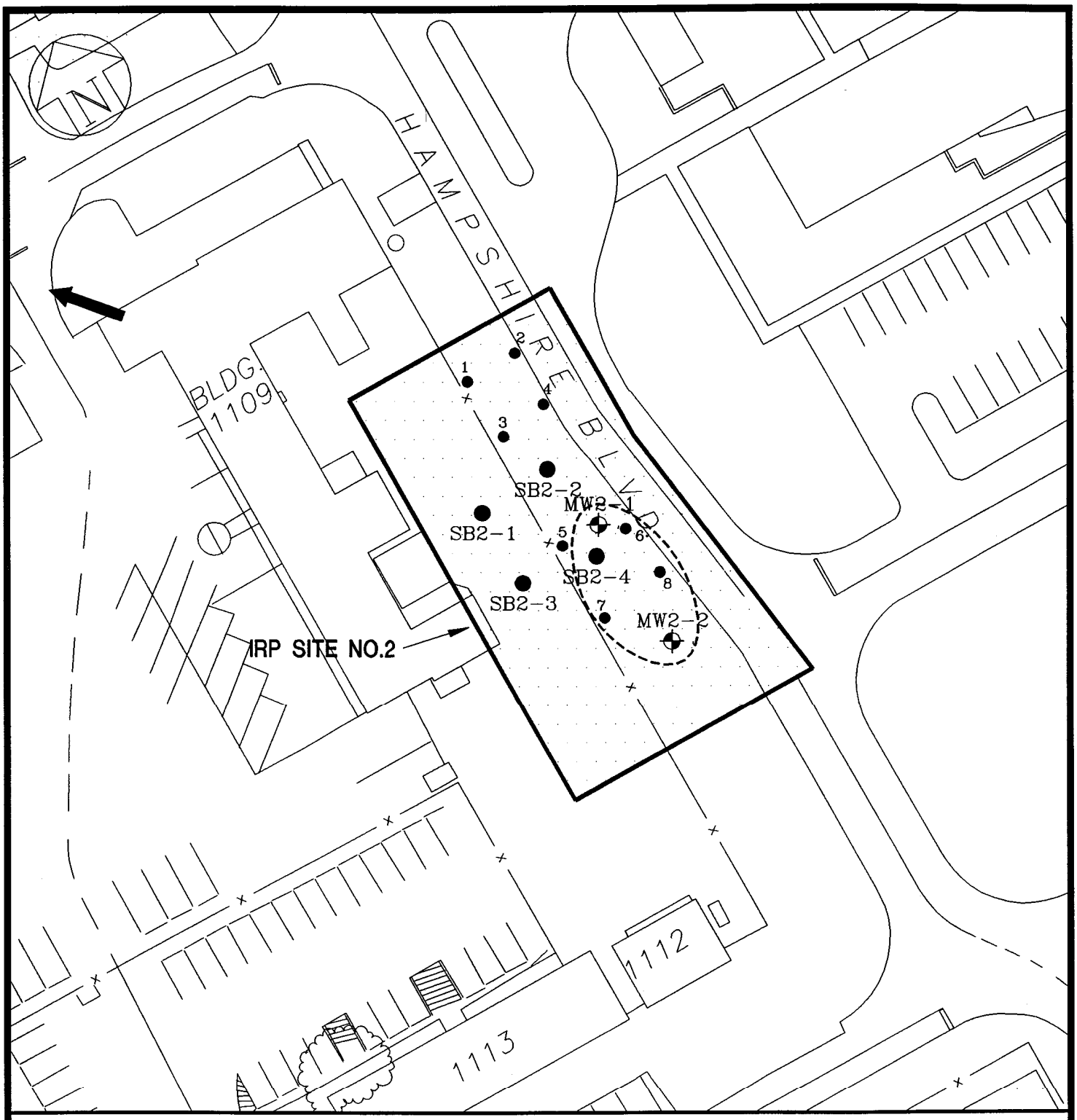
Two monitoring wells, MW1-1 and MW1-2, were installed at the site during the SI field activities (Figure 3.1). Methylene chloride and bromochloromethane were detected in MW1-1, at concentrations of 1,500 micrograms per Liter(μg/L) and 140,000 μg/L, respectively. No VOCs were detected in MW1-2. Metal concentrations were below background levels in both monitoring wells.

The water table at IRP Site No. 1 occurs at a depth of 5 to 7 feet below ground surface (bgs), depending on the seasonal fluctuation rate. The general groundwater flow is to the northwest toward the Columbia River, with a gradient of 0.002 foot/foot (ft/ft) (SAIC, 1991).

Based on the risk assessment results and the low concentration of contaminants in soils, the IRP Site No. 1 soil unit appears to pose no significant threat to human health and the environment, and no further action was recommended for soils. Further investigation of the IRP Site No. 1 groundwater was recommended in the SI Report due to the potential risks and insufficient characterization of the extent of groundwater contamination.

3.2.2 IRP Site No. 2 - Civil Engineering Hazardous Materials Storage Area

The Civil Engineering Hazardous Materials Storage Area (IRP Site No. 2) is located east of Bldg. 1109 (Figure 3.2). IRP Site No. 2 is defined by the former location of the solvent storage shed south of Bldg. 1123. The storage shed and Bldg. 1123 were removed from the area during



LEGEND

- EXISTING MONITORING WELL
- EXISTING SOIL BORING
- SOIL GAS STATION
- —x—x— FENCE LINE
- GROUNDWATER FLOW DIRECTION
- AREA OF KNOWN GROUNDWATER CONTAMINATION

0 50

SCALE IN FEET

SOURCE: SAIC, 1991.

FIGURE 3.2

PL_FIG\ST_1-2

IRP SITE NO.2: EXISTING SAMPLING LOCATIONS

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Base construction activities. The PA reported that IRP Site No. 2 was located between the storage shed and Bldg. 1123; however, during the SI site coordination meeting conducted by SAIC (1991), it was determined that the site may have been located beneath the storage shed. The storage shed consisted of an open-walled structure with a gravel floor. Drums of chemicals including solvents and methyl ethyl ketone were stored on wooden pallets at the site.

Bldg. 1123 was a former paint storage building. At present time, the former storage shed area is bisected by a wire mesh fence which runs in a north-south direction.

Underground utilities and storm drains are located on the east and the west sides of the Hampshire Boulevard. Topography of the site is relatively flat.

3.2.2.1 Waste Disposal History and Previous Investigation

Chemical drums, including solvent, thinner, and methyl ethyl ketone were stored in or near the storage shed on wooden pallets at the site. Drum leakage and discolored gravel (oil stain) were reported in the PA as a potential source of contamination (SAIC, 1991).

During test pit excavations at the site (four test pits), eight composite soil samples were collected by SRH Associates in September 1988. Only TPH was detected in two samples; 4 mg/kg and 35 mg/kg at depths of 0.5 and 3.5 ft., respectively. No solvents were detected in the soil samples.

Eight soil samples were collected from four shallow soil borings at the site during the SI field activities (Figure 3.2). Soil samples were collected from depths of 0.5 and 3.5 ft. VOCs were not detected in any of the samples collected from the soil borings. Eight soil gas samples were collected for field screening from the grassy areas east of the site. Soil screening results indicated maximum concentrations (10 μg/L) of trichloroethene in all samples. Tetrachloroethene, chloroform, and 1,1,1-trichloroethane were reported as tentatively identified compounds in the field screening analyses.

Two monitoring wells (MW2-1 and MW2-2) were installed at the site during the SI field activities (Figure 3.2). Groundwater occurs at a depth of 5 to 7 ft bgs. Groundwater flow at the site is to the northwest with an approximate gradient of 0.002 ft/ft.

Trichloroethene and dichloroethene were detected in groundwater samples from both wells: MW2-1 with trichloroethene at 710 μg/L and dichloroethene at 130 μg/L, and MW2-2 with trichloroethene at 430 μg/L and dichloroethene at 28 μg/L (SAIC, 1991).

The SI Report recommended additional characterization of IRP Site No. 2 groundwater because of the high concentrations of trichloroethene in groundwater and the undefined extent of groundwater contamination. Additional soil sampling was also recommended in the SI Report, only to confirm source area(s).

3.2.3 IRP Site No. 3 - Hush House Area

The Hush House Area (IRP Site No. 3) is located at the southeast corner of the intersection of Carey Street and O'Conner Way (Figure 3.3). IRP Site No. 3 was used to test jet engine performance. Waste oil, solvents, and fuel were stored in 55-gallon drums at the southwest corner of the building (HMTC; 1988, SAIC; 1991). An oil/water separator was located approximately 75 ft south of the former Hush House. An exhaust tower and associated piping from the condensation system was connected and drained into the oil/water separator. To make identification of the site areas easier to understand, the former Hush House area investigated during the SI has been designated IRP Site No. 3 Area A, the oil/water separator will be designated Site No. 3 Area B, and an area to the northeast of the Hush House where during construction activities encountered hydrocarbon contamination has been designated as IRP Site No. 3 Area C.

The topographic surface at IRP Site No. 3 is slightly elevated and is approximately 2 to 3 feet above the surrounding land area. The ground surface slopes towards the south and east. Surface water from the site drains into the Main Drainage Ditch (IRP Site No. 4) through a culvert, which passes under Carey Street.

3.2.3.1 Waste Disposal History and Previous Investigation

IRP Site No. 3 was used as a jet engine testing facility. Drums of waste oil, fuel, and solvents were stored at the southwest corner of the building on an unpaved surface. These wastes may have impacted site soils due to spills, runoff, and washoffs at the former Hush House.

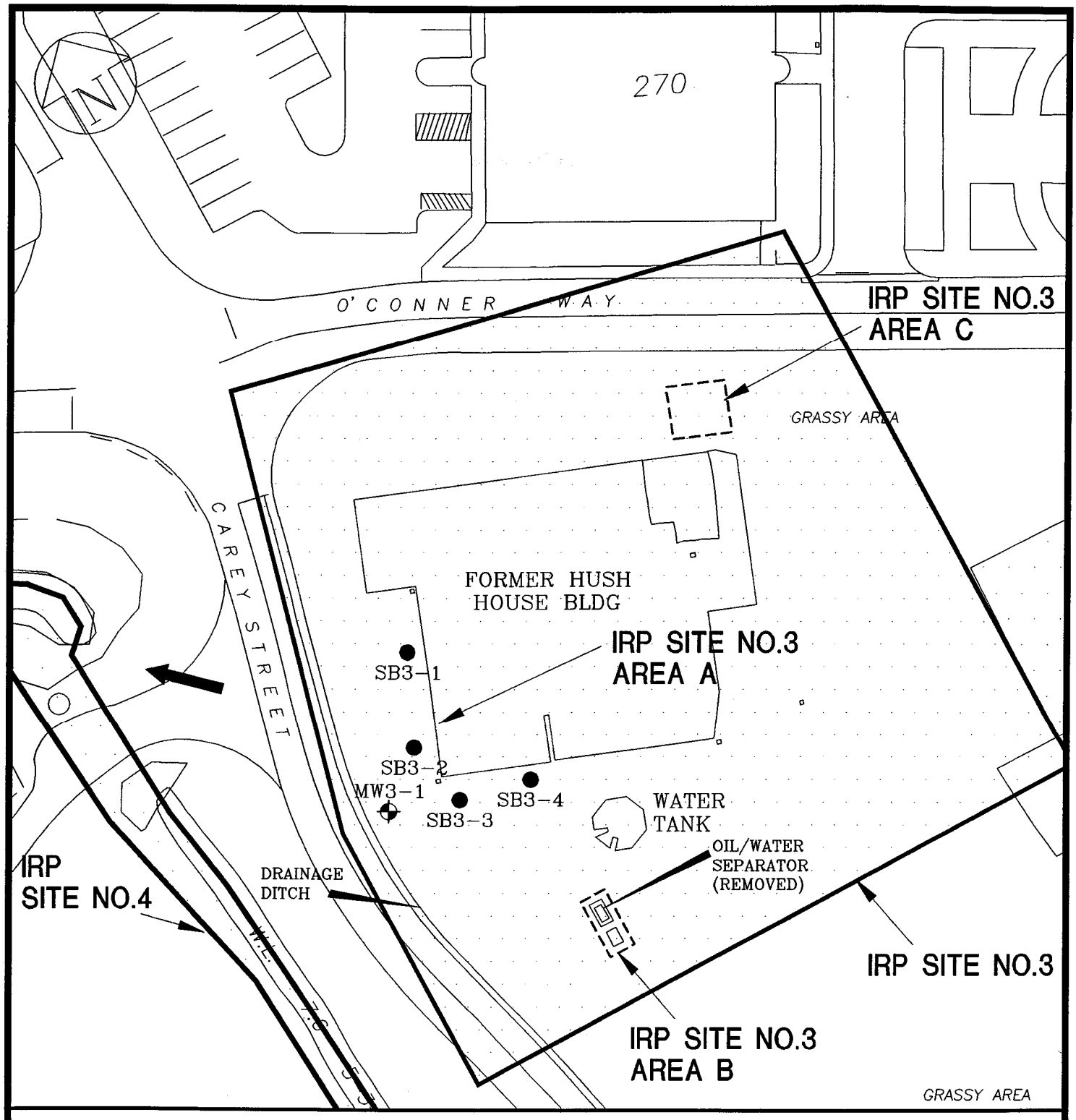

FIGURE 3.3

PL_FIG\ST_3-4

IRP SITE NO.3:
EXISTING SAMPLING LOCATIONS

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IRP Site No. 3 Area A, Hush House Area

Two composite soil samples were collected from four test pits by SRH Associates in September 1988, from a depth of 0.5 and 3.5 ft bgs. TPH was detected at a maximum concentration of 17 mg/kg in the deeper sampling interval. Among polycyclic aromatic hydrocarbons (PAHs), only low concentrations of pyrene and fluorene were detected in soil samples (SRH, 1988).

Eight soil samples were collected from depths of 1 and 8 feet during the SI field activities (SAIC, 1991). Samples were collected from the southwest corner of the building (Figure 3.3). Low concentrations of TPH (SB3-1-2, 2.0 mg/kg) and methylene chloride (SB3-2-1R, 0.041 mg/kg; SB3-3-2, 0.026 mg/kg; SB3-4-2, 0.017 mg/kg) were detected in samples collected from the deeper interval. However, the same chemicals were also detected in quality assurance/quality control samples indicating possible cross contamination had or occurred or that the chemical was a laboratory artifact.

No VOCs were detected in the groundwater sample collected from monitoring well MW3-1.

The SI Report recommended no further investigation of IRP Site No. 3, Area A - southwest corner of the former Hush House, because of the absence of significant contamination and the low risk associated with the original area investigated (SAIC, 1991). However, more recent information from Base personnel indicates that soil and groundwater contamination may be present at IRP Site No. 3, Area C - northeast corner of the former Hush House; additional site characterization activities in this area are warranted.

IRP Site No. 3 Area B, Oil/Water Separator

During the excavation and removal of the oil/water separator in August 1993, stained soils were observed in the excavation. There has been no previous investigation in this particular area of the site.

Based on more recent information that soil and groundwater contamination may be present at the former oil/water separator site area, IRP Site No. 3 Area B, additional site characterization activities in this area are warranted.

IRP Site No. 3 Area C, Construction Area

In 1994, the Base reported fuel-related contamination in soils at the northeast corner of the former Hush House concrete pad. Soil contamination discovered during excavation, was noted to occur at depths up to 8 ft bgs and was in contact with the groundwater. No samples were collected and analyzed. No previous investigation in this area of the site has occurred.

3.2.4 IRP Site No. 4 - Main Drainage Ditch

The Main Drainage Ditch (IRP Site No. 4) is located on the west central portion of the Base and receives fluids from drainpipes fed by surface catchment, runway spillage, open ditches, Base surficial overflow, and stormwater and storm sewer piping systems (Figure 3.4). The fluids in the Main Drainage Ditch flow across the western boundary of the Base and empty into the Columbia Slough via a pumping station.

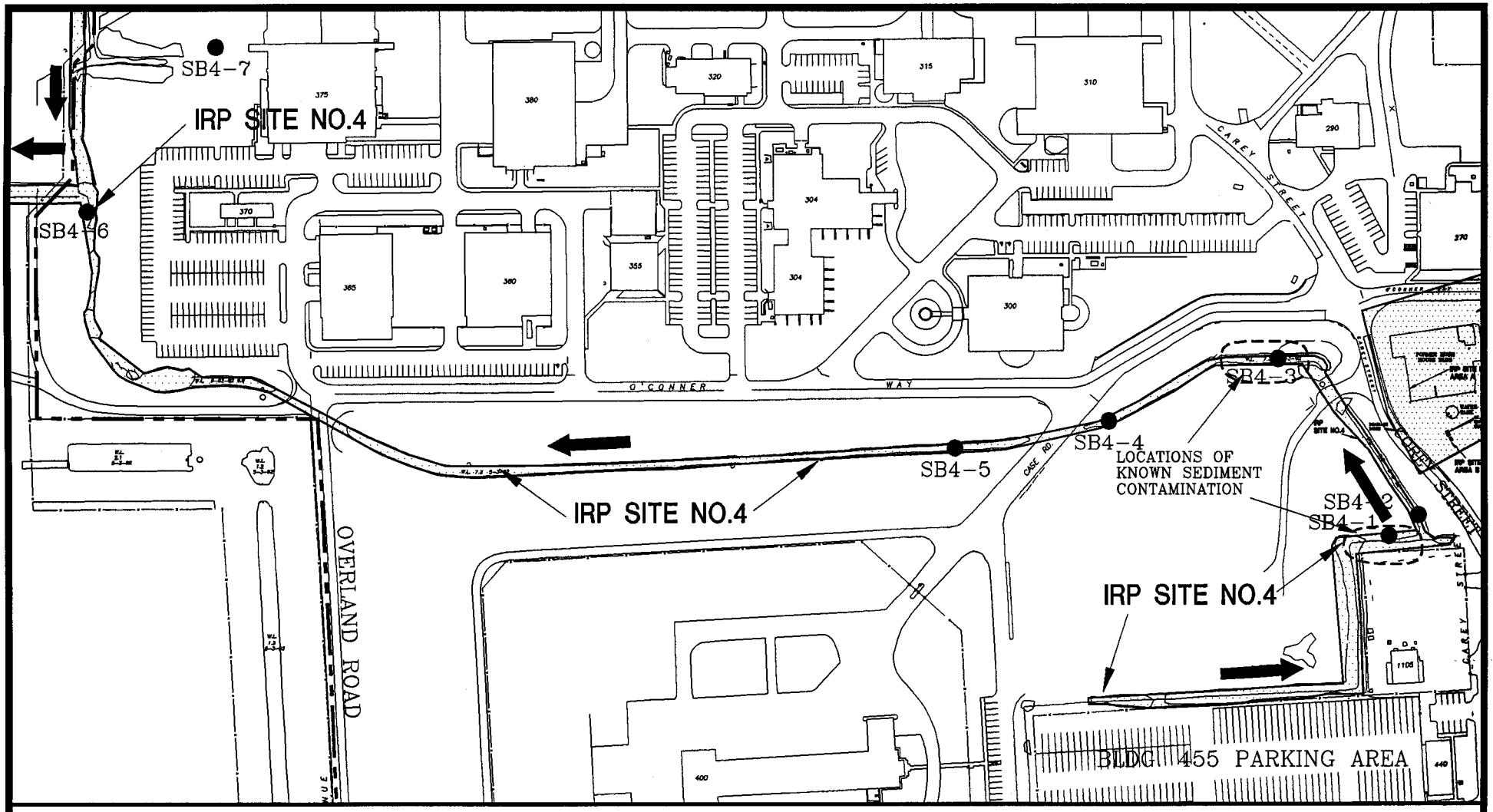
During initial field surveillance activities and sampling, HMTC (1987) reported the presence of fuel and oil in the Main Drainage Ditch downstream from the apron area. Fuel spills from industrial facilities located adjacent to the Main Drainage Ditch have been reported by the Base personnel (SAIC, 1991).

3.2.4.1 Waste Disposal History and Previous Investigation

IRP Site No. 4 receives fluid from stormwater and sanitary sewer lines, surface runoff, and open ditches. Accidental spillage, indirect discharge, and washoff water containing residual chemical constituents from industrial facilities located adjacent to the Main Drainage Ditch may have impacted sediments in the ditch.

Limited sediment and surface water sampling has been conducted in the drainage ditch downstream of the Base (R.N. Smith Associates, 1987). Lead was detected with a concentration ranging from 32 to 2,700 mg/kg. The source of pollutants that entered this portion of the ditch has not been defined (HMTC, 1987).

During the SI field activities, seven sediment samples (SB4-1 through SB4-7) were collected from the Main Drainage Ditch (Figure 3.4) and analyzed for five metals (cadmium, chromium, lead, nickel, and zinc), PHCs, and VOCs. PHCs were detected in all seven samples with concentrations ranging between 0.58 to 10 mg/kg (SB4-6 and SB4-7). No VOCs were detected



SOURCE: SAIC, 1991.

FIGURE 3.4

PL_FIG\ST_3-4

IRP SITE NO.4: EXISTING SAMPLING LOCATIONS
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in any of the samples, except those that are attributed to the common laboratory chemicals (methylene chloride and acetone). Metals were detected in all samples with the highest concentrations in samples SB4-1 and SB4-3. Samples with the highest metal concentrations are associated with the locations where PHCs were highest (SAIC, 1991). This association may be an indication of the fuel and waste oil spills and releases from the industrial facilities. Surface water samples have not been collected from the Main Drainage Ditch or from the outfalls leading into the ditch.

The preliminary risk assessment for sediment conducted for the site concluded that no adverse carcinogenic or noncarcinogenic effects would be expected under the risk calculation assumptions for human receptors (SAIC, 1991). Metal concentrations in sediment samples collected from the site were also compared with Washington Marine Sediment Quality Standards (WMSQS). Detected metal concentrations were all below WMSQS. Since PHC results are not chemical specific and toxicity information is not available, PHCs were not considered in risk assessment calculation.

The SI recommended further investigation of this site because of the potential presence of contaminants in the surface water and sediments. In addition, the full nature and extent of contamination in the ditch has not been characterized.

3.2.5 IRP Site No. 5 - Aerospace Ground Equipment (AGE) Maintenance Shop

The AGE Maintenance Shop (IRP Site No. 5) consists of possible waste disposal areas along two fence lines, the first located approximately 200 ft north of Bldg. 160 and the second approximately 50 ft south of Bldg. 160 (Figure 3.5). A former leaking UST, Bldg. 1225, and the northern fence line were removed from the site in November and December, 1988. O'Conner Way bisects the former location of the north fence line.

Topography at the site is relatively flat with a slight slope toward the north and the east. Storm drain inlets are located on the east and south ends of the site. Storm sewer and water lines are located along the east side of Carl Street, and power lines pass north of the former location of Bldg. 1225.

3.2.5.1 Waste Disposal History and Previous Investigation

Wastes generated at the AGE Maintenance Shop include spent battery acid, solvents, lubricants, antifreeze, cleaning solutions, and automobile fluids. These wastes were possibly disposed along the northern and southern fence lines as evidenced by soil staining. The former leaking UST at IRP Site No. 5 contained heating oil. The UST was excavated and removed in late 1988.

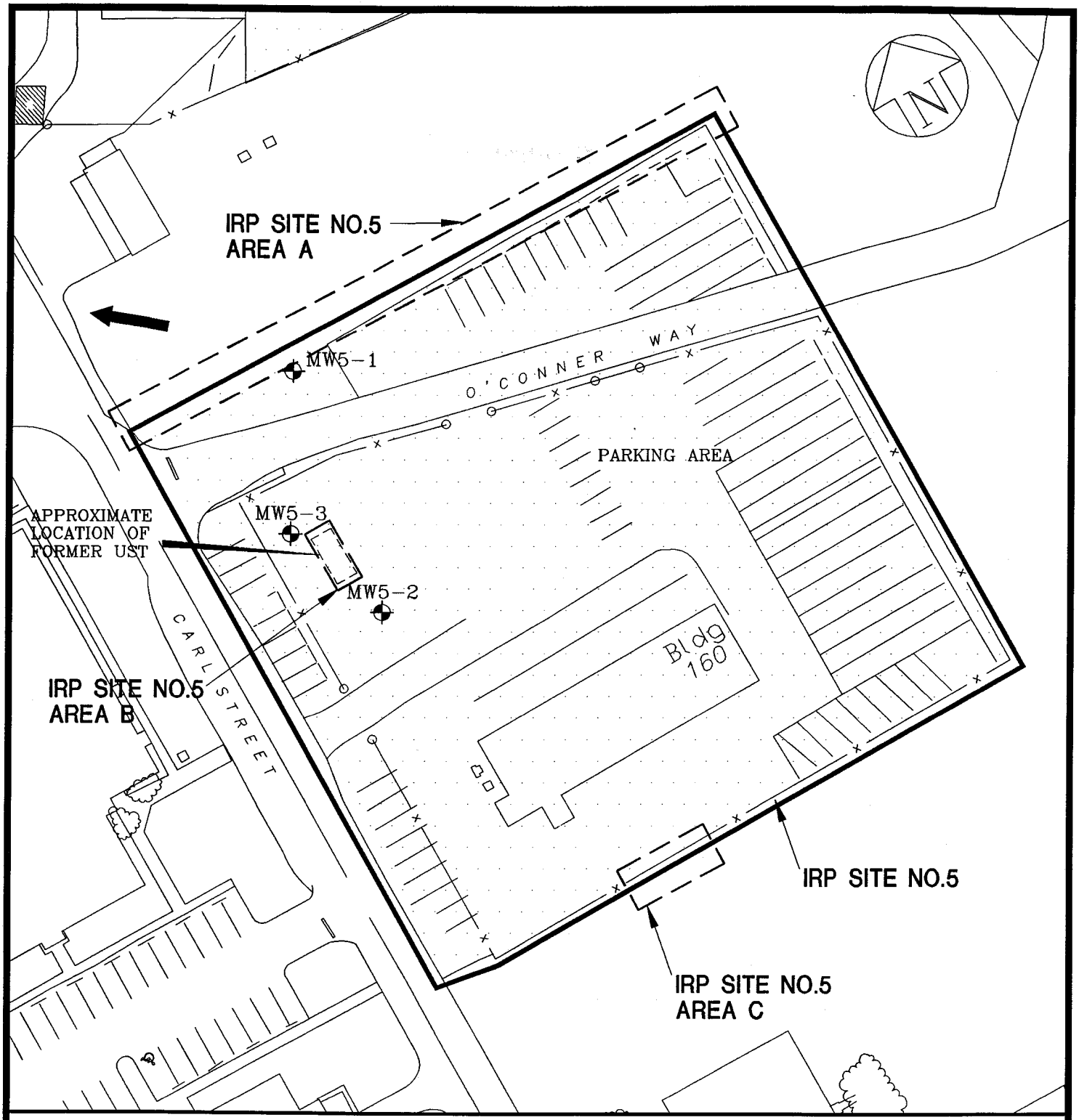
During the SI field activities, surficial soil stains were observed along the northern and southern fence lines. Six soil borings were drilled along the northern fence line (Figure 3.5). Soil samples were collected from 1 and 3 feet depths (SB5-1 through SB5-6) and were analyzed for VOCs, semivolatile organic compounds (SVOCs), and six metals (cadmium, chromium, iron, lead, nickel, and zinc).

VOCs and SVOCs were not detected in any of the soil samples collected from along the northern fence line, except common laboratory contaminants (methylene chloride and acetone). Bis(2-ethylhexyl)phthalate was detected in seven soil samples. Cadmium, lead, and zinc were detected in concentrations above the background levels.

One monitoring well (MW5-1) was installed at the site on the northeast corner of Bldg. 1225 during the SI field activities (Figure 3.5). Groundwater at the site occurs at a depth of 5 to 8 feet and flows to the northwest with a gradient of 0.003 ft/ft (SAIC, 1991). Trichloroethene and Bis(2-ethylhexyl) phthalate were detected at a concentration of 6.2 and 98 μg/L, respectively. Sulfate was detected at a concentration of 42 mg/L. MW5-2 and MW5-3 were installed as part of a UST investigation and samples collected and analyzed were non-detect.

Stressed vegetation was observed by Air National Guard personnel along the southern fence line during a site visit in 1993. No previous investigation of the southern fence line area has occurred.

The Preliminary Risk Assessment indicated that no adverse carcinogenic or noncarcinogenic effects would be expected for the contaminants identified in the groundwater, surface and subsurface soils. However, the concentration of trichloroethene detected in groundwater exceeded ARARs. The SI recommended an investigation to address groundwater contamination in the northern fence line area. Based on more recent information, the southern fence line is also recommended to be investigated for possible soil and groundwater contamination.



LEGEND

- AREA OF POTENTIAL CONCERN
- GROUNDWATER FLOW DIRECTION
- FENCE LINE
- EXISTING MONITORING WELL

SOURCE: SAIC, 1991

0 60

SCALE IN FEET

FIGURE 3.5

PL_FIG\ST_5-7

IRP SITE NO.5: EXISTING SAMPLING LOCATIONS

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3.2.6 IRP Site No. 7 - Burn Pit Area

The Burn Pit Area (IRP Site No. 7) is located to the southeast side of Bldg. 210, outside of the Base boundary (Figure 3.6). The burn pit was used as a fire training exercise area between 1957 and 1979. Several thousand gallons of waste oil, jet fuel (JP-4), solvent, and flammable liquids were burned each year (SAIC, 1991). The pit area has been filled with gravel and compacted.

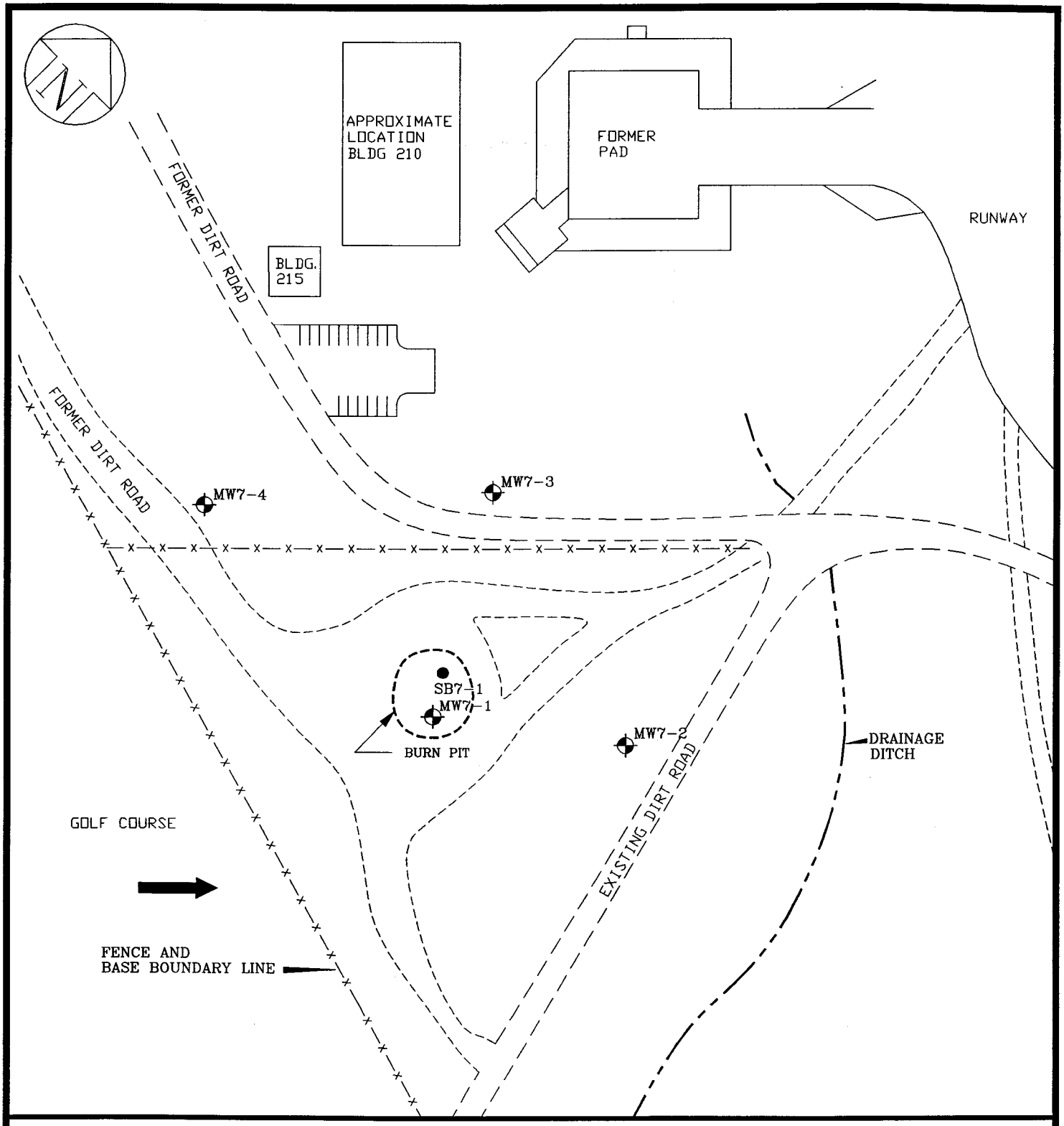
Groundwater occurs at a depth of 9 to 15 ft bgs and the flow direction is to the northeast with a gradient of 0.003 ft/ft.

3.2.6.1 Waste Disposal History and Previous Investigation

During the SI field activities, a soil gas survey, and soil and groundwater sampling were conducted at IRP Site No. 7. Samples for soil gas survey were collected based on a 60-foot grid center (Figure 3.7) and analyzed for methylene chloride, bromochloromethane, dichloroethene, trichloroethene, carbon tetrachloride, benzene, toluene, xylenes, and total hydrocarbons. The soil gas survey confirmed that the highest concentrations of contaminants were confined to the burn pit area. Total VOCs were detected at a maximum of 1,100 μg/L (air) as depicted in Figure 3.7. Three soil samples (SB7-1-1, SB7-1-2, and SB7-1-3) were also collected from one soil boring from the center of the pit (Figure 3.6), at a depth of 1, 5, and 10 feet, and analyzed for TPH and lead. Lead was detected at a concentration ranging between 2.6 and 5.6 mg/kg, and TPH concentrations ranged between 11 to 72 mg/kg.

Four monitoring wells were installed during the SI field activities. Groundwater was encountered at approximately 9-15 ft during the SI. Groundwater samples were analyzed for VOCs, SVOCs, lead, and field parameters (pH, temperature, and specific conductance). Lead was detected at a concentration ranging between 1.6 and 14 μg/L. VOCs and SVOCs were not detected in any of the groundwater samples, except the common laboratory contaminant methylene chloride.

Preliminary risk assessment conducted at the site did not indicate any adverse carcinogenic or noncarcinogenic effects for surface and subsurface soils and the groundwater (SAIC, 1991). However, the SI Report recommended further investigation of the site because of the widespread presence of chlorinated hydrocarbons (soil gas survey) and the need to characterize more completely the extent and nature of site contamination in soils and groundwater.



LEGEND

- EXISTING SOIL BORING
- FENCE LINE
- GROUNDWATER FLOW DIRECTION
- EXISTING MONITORING WELL
- APPROX. AREA OF BURN PIT & AREA OF KNOWN SOIL CONTAMINATION

SOURCE: SAIC, 1991.

0 100

SCALE IN FEET

FIGURE 3.6

PL_FIG\SITE-7

IRP SITE NO.7: EXISTING SAMPLE LOCATIONS

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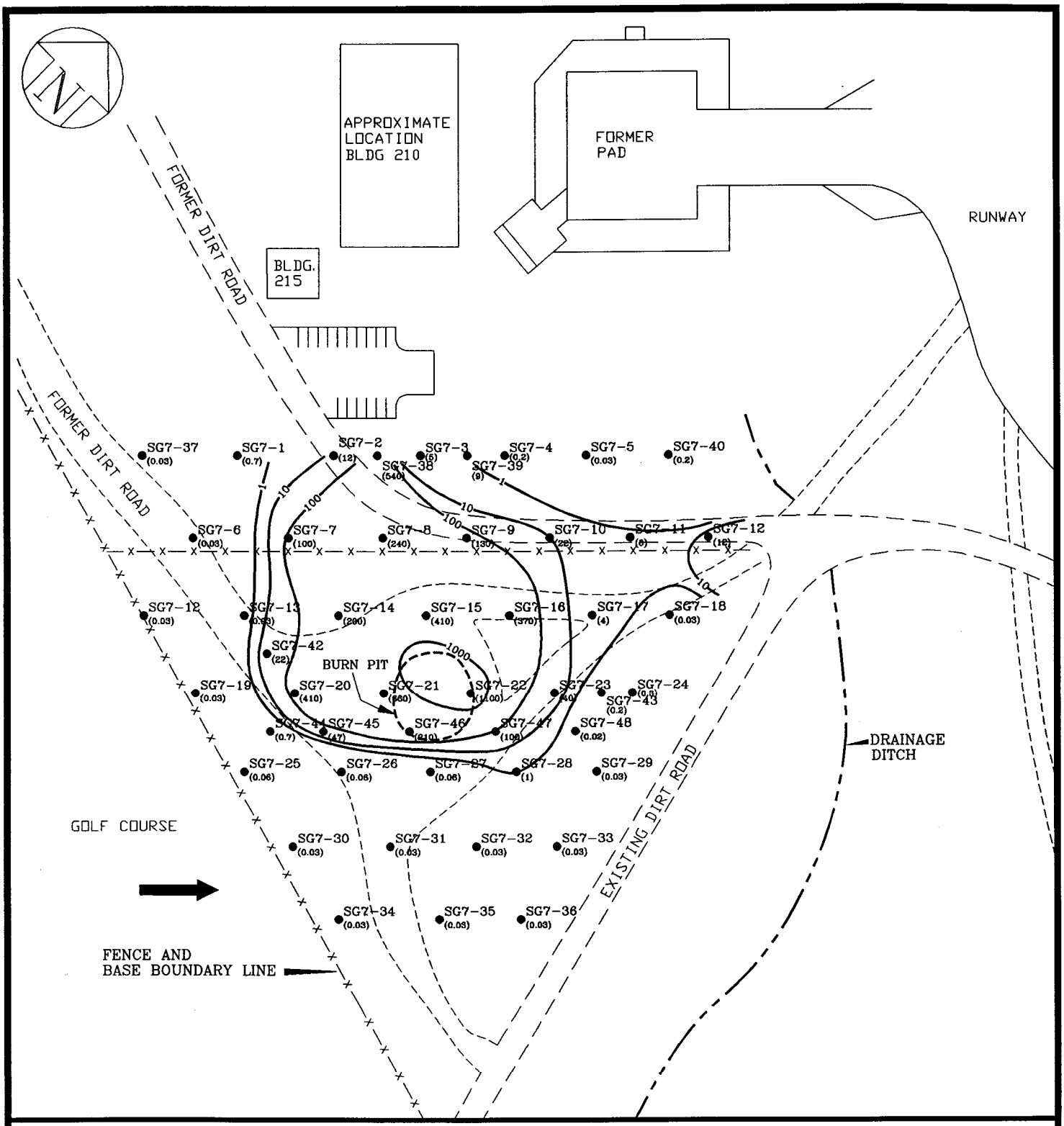

LEGEND

- APPROX. AREA OF BURN PIT
- FENCE LINE
- GROUNDWATER FLOW DIRECTION
- SG7-36 (0.7) SOIL GAS SAMPLE LOCATION WITH CONCENTRATION (ppb)
- 10 ISOCONCENTRATION LINE

0 100

SCALE IN FEET

SOURCE: SAIC, 1991.

FIGURE 3.7

PL_FIG\SITE-7

IRP SITE NO.7: EXISTING SOIL GAS SURVEY AREA

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3.2.7 IRP Site No. 8 - Sanitary Landfill (SLF)

The Sanitary Landfill (IRP Site No. 8) is located east-southeast of Bldgs. 250, 245, 235, and 255 (Figure 3.8). A very limited amount of information is available to identify the exact location and disposal activities at the SLF (HMTC, 1987). IRP Site No. 8 was active between 1949 and 1956 and occupied an area of approximately one acre (SAIC, 1991). Landfilling was done by excavating trenches 6 to 8 ft deep, 60 to 70 ft long, 10 ft wide, and 5 to 20 ft apart. Trenches were then covered with 3 to 4 ft of excavated materials.

3.2.7.1 Waste Disposal History and Previous Investigation

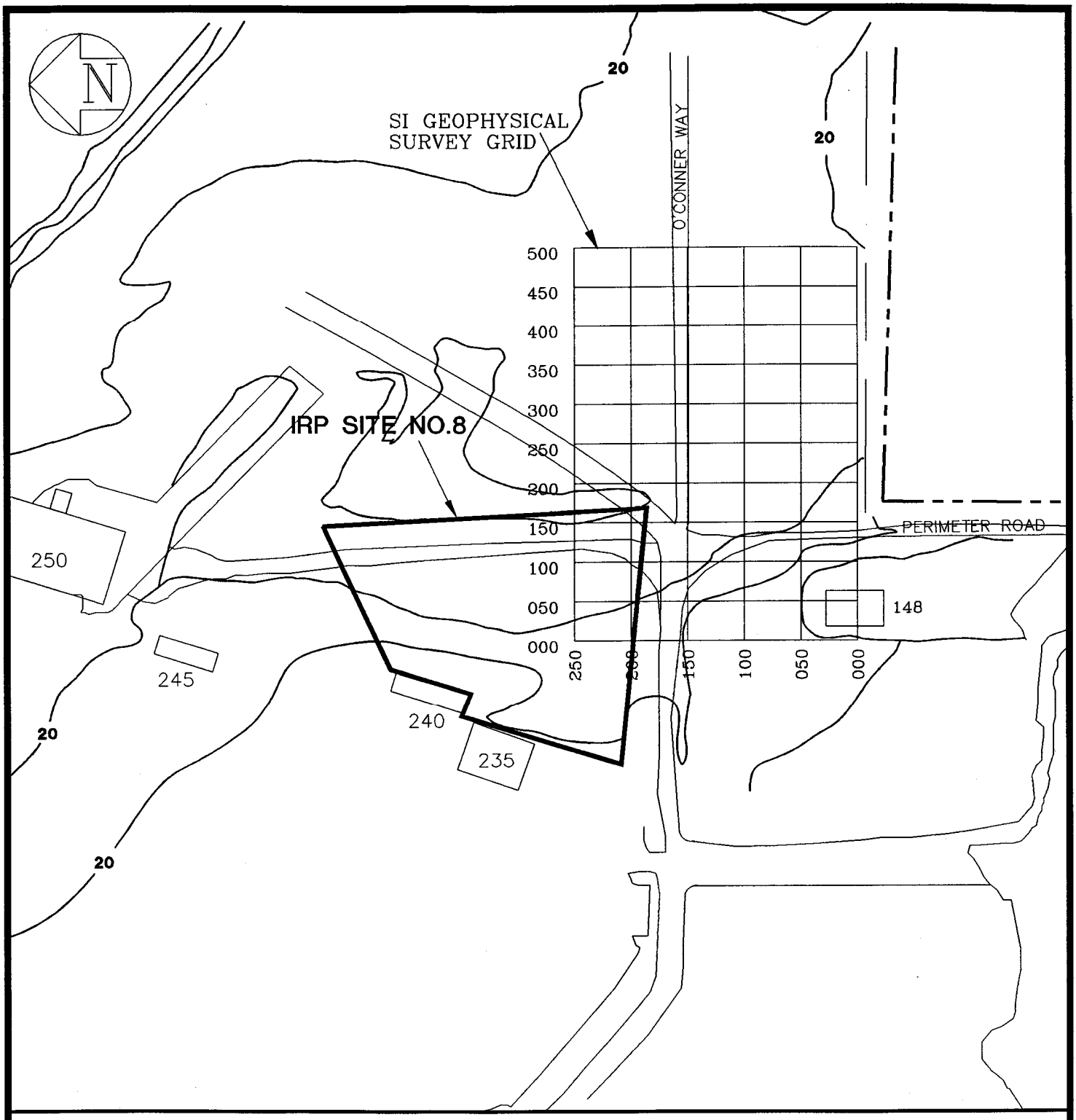
The SLF received wastes generated by the Base and the Army National Guard between 1949 and 1956. The waste consisted of ordinary shop and building refuse, paint cans, oil and paint residue, batteries, waste papers, and broken equipment and parts.

In order to determine the location of trenches associated with the landfill activities at the site, historic aerial photographs found at the U. S. Army Corps of Engineers and Base files were reviewed during the SI (SAIC, 1991). Review of the aerial photographs did not reveal significant information to delineate boundaries of buried trenches at the site. However, evidence of surface disturbances were identified on the aerial photographs.

Subsequent to aerial photograph review, geophysical surveys were conducted at the site (Figure 3.8). An electromagnetic survey (EMS) and Total Field Magnetic (TFM) survey were conducted to locate landfill trenches. The survey grid was established based on a 50 ft grid center (maximum surveyed area of 250 ft by 250 ft). Anomalies were detected by both EMS and TFM surveys on the west side of the grid at the site. The source of the anomalies is unknown.

Three trenches were excavated by the Base for underground utility lines in a north-south direction, in the area of anomalies detected by the EMS and TFM surveys and east of Bldg. 250. Landfill material was not encountered in any of the trenches.

No soil or groundwater samples were collected during the SI (SAIC, 1991). However, Base personnel collected soil samples at the site during trench excavation, but that information was not available for evaluation.



LEGEND

ANG BOUNDARY

OUTLINE OF IRP SITE

20 TOPOGRAPHIC CONTOUR (IN FEET)

0 180

SCALE IN FEET

SOURCE: SAIC, 1991.

FIGURE 3.8

PL_FIG\ST_8

IRP SITE NO.8: SITE LOCATION MAP SHOWING LOCATION OF PREVIOUS GEOPHYSICAL SURVEY GRID

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The SI Report recommended further investigation of the site area to determine the existence and location of the SLF.

3.2.8 IRP Site No. 9 - Petroleum, Oil, and Lubricants (POL) Facility

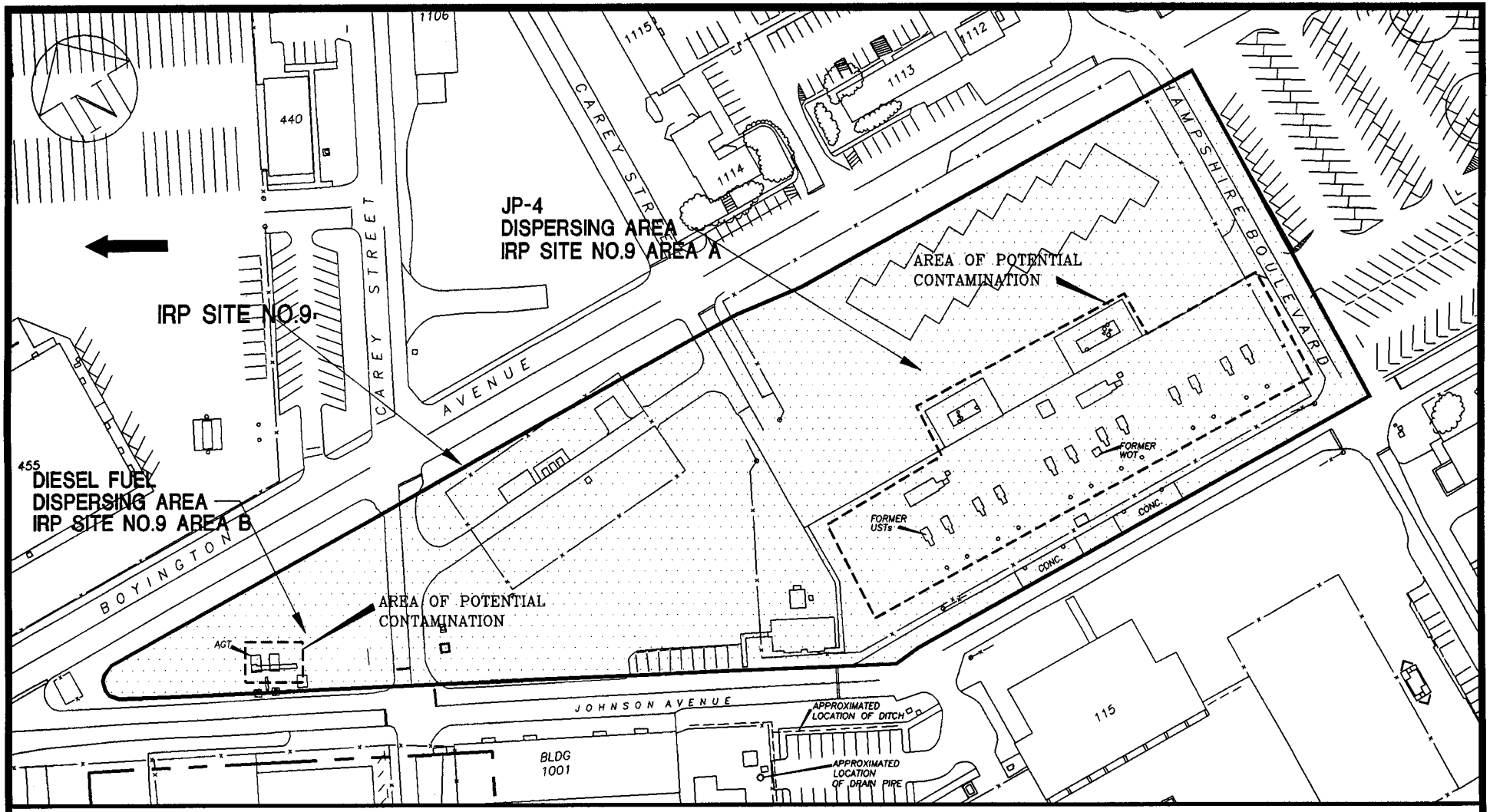
The POL Facility (IRP Site No. 9) is located at the intersection of Boyington Avenue, Hampshire Boulevard, and Johnson Avenue. IRP Site No. 9 Area A consists of two separate source areas. IRP Site No. 9 Area A is the former POL facility that included two fuel dispensing areas, and IRP Site No. 9 Area B is the former diesel dispensing area (Figure 3.9). IRP Site No. 9 Area A contained twelve 25,000-gal USTs and a waste oil underground storage tank. The thirteen USTs were removed in March 1994. IRP Site No. 9 Area B had two aboveground storage tanks (HMTC, 1987) (Figure 3.9).

3.2.8.1 Waste Disposal History and Previous Investigation

The USTs at IRP Site No. 9 Area A had been used in the past to store JP-4 fuel only. Inventories and tank and associated piping tightness test results did not indicate leaks in any of the tanks or supply pipes. The aboveground tanks at IRP Site No. 9 Area B were filled from Johnson Avenue on the southern side of the site.

In 1991, the Base discovered soil contamination and free product at IRP Site No. 9 Area A while performing site construction. Soil contamination was reported to occur from a depth of 2 ft bgs to the water table at the filling stands. Soil samples were collected using a direct push sampling device from a depth of 13 ft bgs, which is the depth of the base of the USTs and approximately 7 ft below the water table. The analytical results indicated there was no soil contamination. Then, in 1994 when the Base decommissioned the USTs, soil samples were collected from the excavation sidewalls and from the standing water within the open excavations. Benzene, toluene, ethylbenzene, and xylenes, TPH (diesel and gasoline fractions), and PAHs were detected in all soil samples (except in areas associated with tank pits 1/2 and 11/12) and all water samples.

No other investigations of IRP Site No. 9 Area A and IRP Site No. 9 Area B have occurred. Based on this information, further investigation of IRP Site No. 9 Areas A and B is warranted.



LEGEND

ANG BOUNDARY

GROUNDWATER FLOW DIRECTION

FENCE LINE

AREA OF POTENTIAL CONTAMINATION

0 125

SCALE IN FEET

SOURCE: SAIC, 1991.

FIGURE 3.9

PL_FIG\ST_8-9

IRP SITE NO.9: SITE LOCATION MAP

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3.2.9 IRP Site No. 10 - Equipment Washrack

The Equipment Washrack (IRP Site No. 10) is located at the southeast corner of Bldg. 1001 (Figure 3.10). IRP Site No. 10 consists of a concrete pad approximately 30 ft by 30 ft and a drain pipe; it was in operation from 1950 to 1993. The concrete pad (Figure 3.10) slopes toward the east where fluids flow into a roadside ditch located northeast of the drain pipe.

3.2.9.1 Waste Disposal History and Previous Investigation

Limited soil sampling has been conducted at the site by the Base. Two soil samples were collected near the washrack outfall by the Base, from depths of 1 and 3 ft bgs, and analyzed for oil and grease and metals (only the 3 ft sample). Oil and grease was detected in both samples at concentrations of 7,400 milligrams/kilogram (mg/kg) (1 ft) and 760 mg/kg (3 ft), respectively. Barium (110 mg/kg), cadmium (21 mg/kg), chromium (41 mg/kg), and lead (400 mg/kg) were detected in the sample collected from the 3 ft interval.

No other investigation of this site area has occurred. Based on this information, further investigation of IRP Site No. 10 is warranted.

3.2.10 IRP Site No. 11 - Washrack West of Bldg. 250

The Washrack West of Bldg. 250 (IRP Site No. 11) is located at the southeast corner of Apron A and southwest of Bldg. 250 (Figure 3.11). The washrack is used to wash mission aircraft in such a manner that solvent and degreaser are applied before the soap and water mixture. IRP Site No. 11 consists of a concrete pad, 80 ft by 80 ft square, a drain pipe, and an oil/water separator (Figure 3.11). The concrete pad slopes towards the east where fluid is drained into the oil/water separator via the drain pipe. Fluid from the oil/water separator was discharged into the storm sewer prior to 1984 and into the sanitary sewer line after 1984.

The oil/water separator was a concrete lined, three staged, gravity baffled system. The oil/water separator was removed from service after the discovery of cracks in the center stage in 1989.

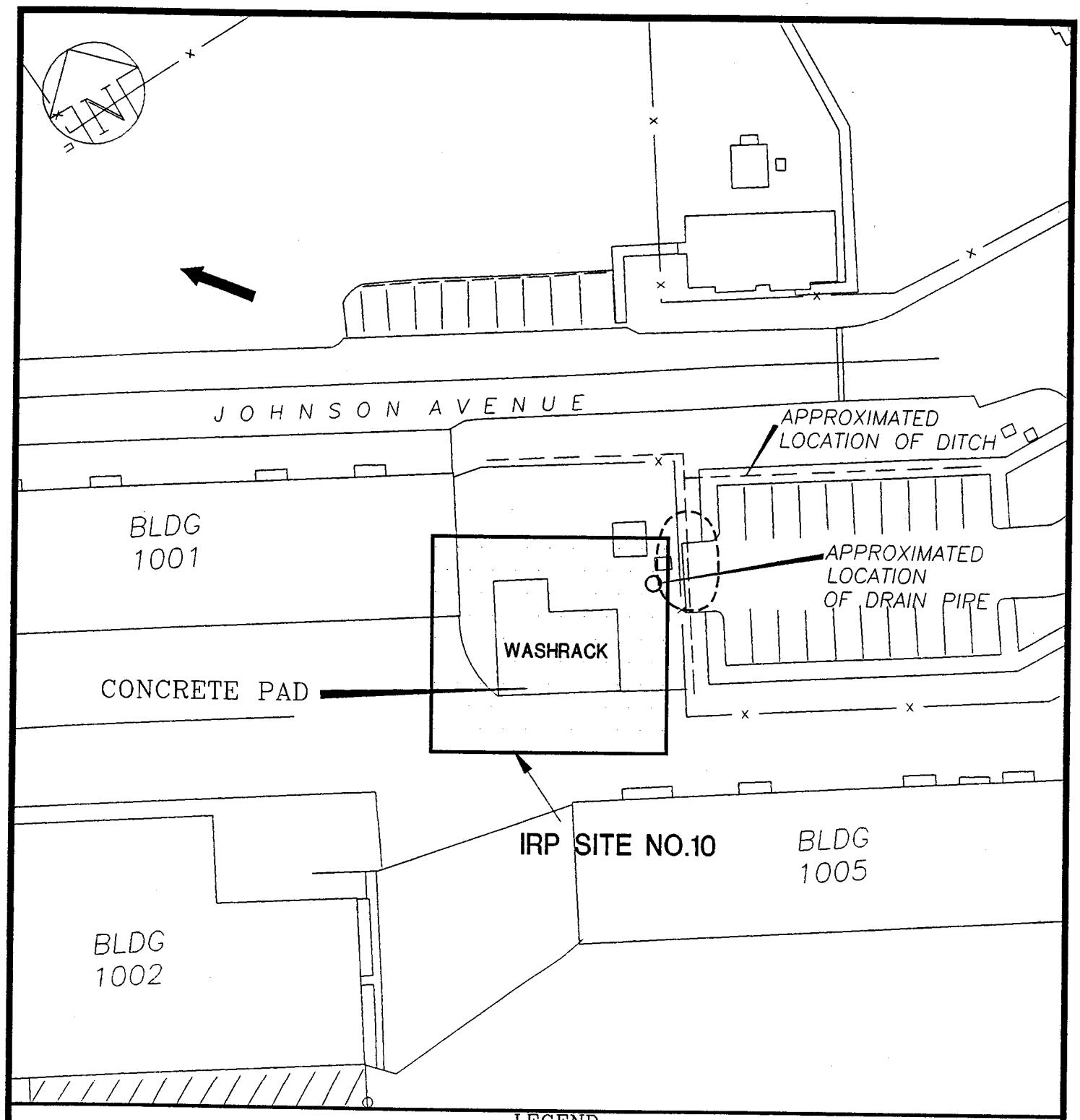

FIGURE 3.10

PL_FIG\ST_10-11

IRP SITE NO.10:
SITE LOCATION MAP
142nd FG, Oregon ANG
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Portland, Oregon

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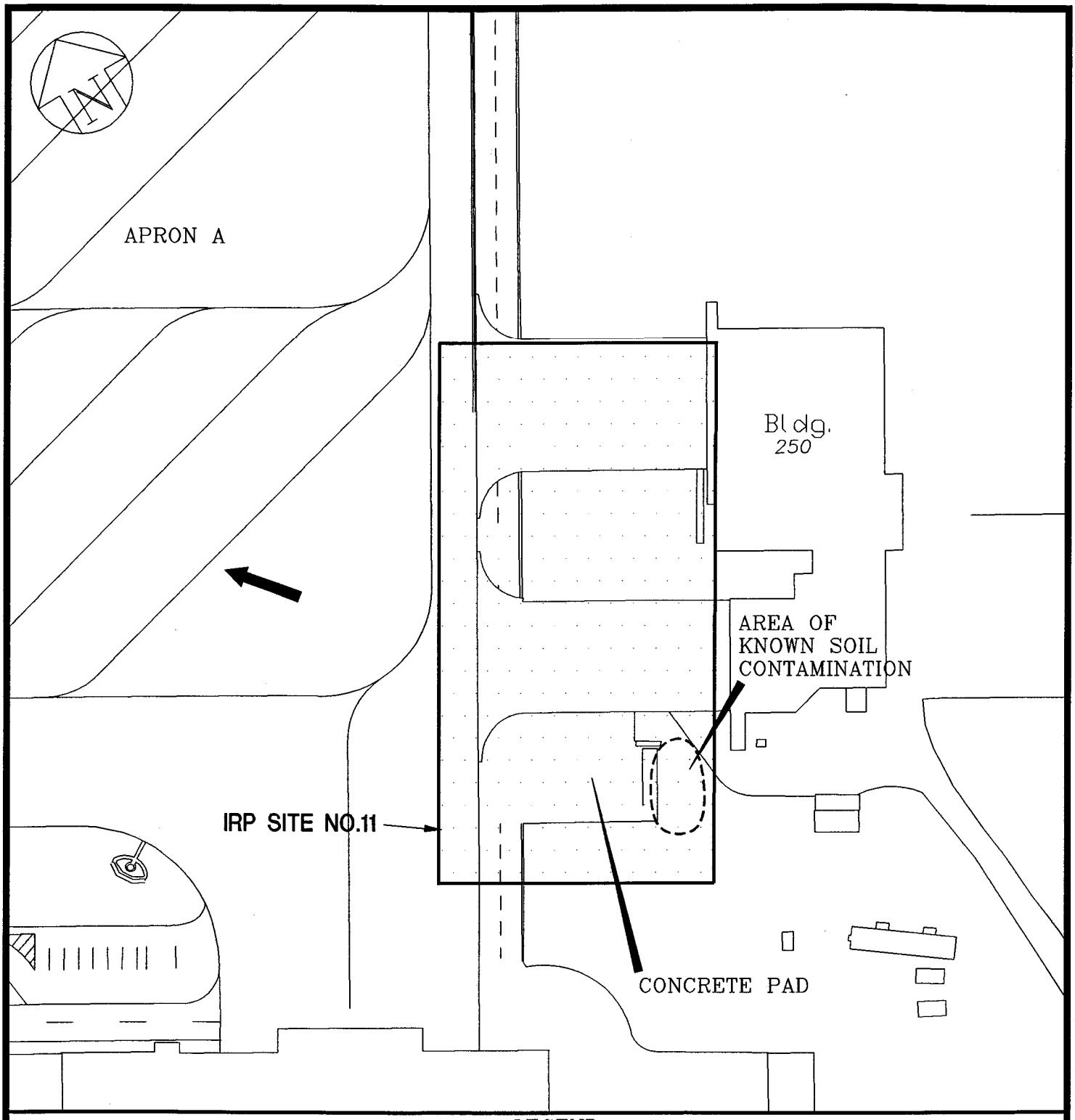

LEGEND

—x—x— FENCE LINE

GROUNDWATER FLOW DIRECTION

AREA OF KNOWN SOIL CONTAMINATION

0 75

SCALE IN FEET

FIGURE 3.11

PL_FIG\ST_10-11

IRP SITE NO.11: SITE LOCATION MAP

142nd FG, Oregon ANG
Portland International Airport
Portland, Oregon

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3.2.10.1 Waste Disposal History and Previous Investigation

No groundwater sample was collected from the site. However, during trenching and excavation for utility line installation, soil contamination was observed by the Base personnel on the west side of the concrete pad and the oil/water separator.

One soil sample was collected from the trench excavation at a depth of 3 ft by the Base personnel. TPH was detected at a concentration of 6,000 mg/kg. Metals were also detected in low concentrations in the soil sample (TCLP method).

No other investigation of this site area has taken place. Based on this information, further investigation of IRP Site No. 11 is warranted.

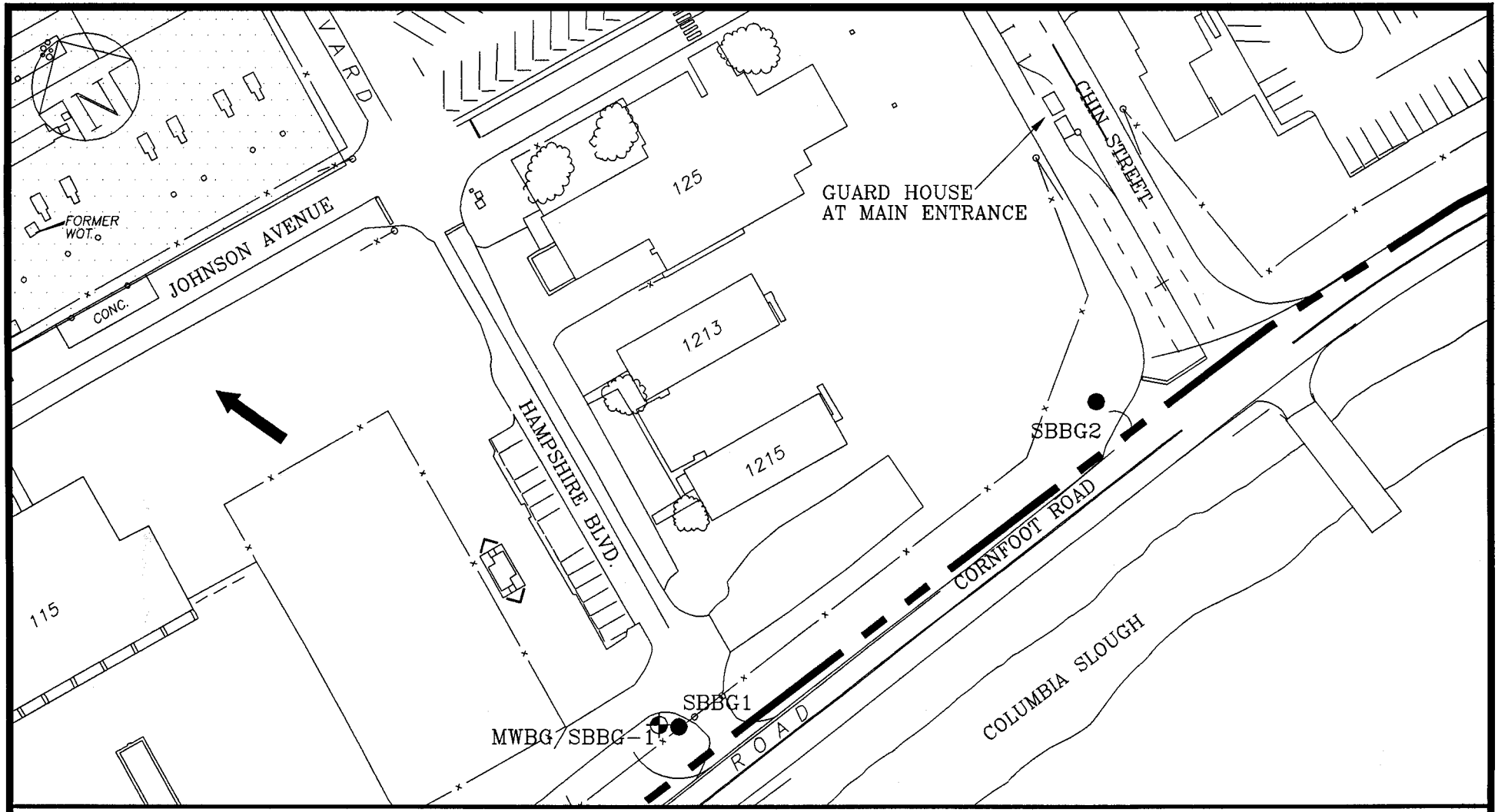
3.2.11 Base Background Conditions and Previous Investigation

During the SI field activities in December 1988 (SAIC, 1991), two soil samples were collected from each of the two background soil borings; SBBG-1 and SBBG-2 (Figure 3.12), at a depth 1 and 8 ft bgs and were analyzed for VOCs, PCBs, and PHCs. Two additional soil samples were also collected in August 1989 from a shallow soil boring (3 ft bgs) and analyzed for SVOCs and selected metals (cadmium, chromium, iron, lead, nickel, zinc, and sulfate).

One groundwater sample was collected from MWBG-1 and analyzed for VOCs, SVOCs, PCBs, PHCs, selected metals (cadmium, chromium, iron, lead, nickel, zinc, and sulfate), and field parameters (pH, temperature, and conductivity).

VOCs, SVOCs, PCBs, and PHCs were not detected in any of the soil or the groundwater samples. Metals were detected in the soil sample at concentrations of 0.20 mg/kg of cadmium, 24 mg/kg of chromium, 25,000 mg/kg of iron, 14 mg/kg of lead, 17 mg/kg of nickel, and 54 mg/kg of zinc.

Metals in the groundwater sample were detected at concentrations of 0.86 μg/L of cadmium, 830 μg/L of iron, 2.2 μg/L of lead, and 30 μg/L of zinc. Sulfate was detected at 13,000 μg/L.



LEGEND

GROUNDWATER FLOW DIRECTION

EXISTING MONITORING WELL

EXISTING SOIL BORING

ANG BOUNDARY

—x—x— FENCE LINE

0 85

SCALE IN FEET

SOURCE: SAIC, 1991

FIGURE 3.12

PL_FIG\ST_SITES

EXISTING BACKGROUND SOIL BORING AND GROUNDWATER MONITORING WELL LOCATIONS

142nd FG, Oregon ANG
Portland International Airport
Portland, Oregon

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SECTION 4.0 ENVIRONMENTAL SETTING

4.1 METEOROLOGY

Meteorological data presented in the PA and SI were derived from local climatological data for the Portland area compiled by the National Oceanic and Atmospheric Administration (NOAA, 1982). The Portland area has a moderate temperature climate characterized by mild rainy winters and warm to hot, dry summers. Approximately 88 percent of the annual total rainfall normally occurs between October and May. The mean annual temperature is about 53° Fahrenheit (F), with winters averaging 40°-50° F and summers averaging 60°-70° F (SAIC, 1991). Annual net precipitation is calculated to be 13.81 inches per year (HMTC, 1987).

4.2 GEOLOGY

The Oregon ANG is situated on the Columbia River floodplain, which is composed of fluvial and lacustrine sediments. The area is relatively flat and is approximately 20 feet above the sea level. The Base occupies part of the Portland Basin, a northwest-southeast trending structural depression which was formed in the early Tertiary and filled with approximately 1,800 feet of sedimentary strata of late Tertiary and Quaternery sediments.

The northern Portland area is underlain by Tertiary and Quaternary sedimentary and volcanic deposits. Eocene and Miocene rocks, the Sandy River Mudstone, Troutdale Formation, Columbia River Sand, Boring Lava intrusions, and Pleistocene-Recent Alluvium are present in the area occupied by the Oregon ANG.

The oldest rock unit in the Portland Basin is Waverly Heights basalt which has a total thickness up to 600 feet (Swanson et al., 1993). The Goble Volcanic Formation is overlying the Waverly. Pittsburgh Bluff and the Scappoose Formation are of marine origin and overlying the Goble. The Columbia River Basalt Group extends over the northern one-third of Oregon and the southeastern Washington area.

The Sandy River Mudstone is the oldest sedimentary unit of the Portland Basin and consists of silt and fine to medium grained sand with some gravel lenses. Plant fossils and wood fragments are present in the silty layers. Clay rich and ash units are predominant in the upper portion of the formation and are interbedded with Troutdale Formation.

The Troutdale Formation interfingers with the Sandy River Mudstone and consists of fluvial conglomerates of quartzite and granite and vitric-lithic sand and conglomerates. To the east of the Base, the unit becomes predominantly sand and gravel, and on the west it pinches out and is replaced by Sandy River Formation (Swanson et al., 1993).

Approximately 200 to 300 feet of sand and gravel of the Columbia River Sand was deposited in the Portland Basin area. The unit is predominantly sand with a small amount of silt and gravel (Hartford and McFarland, 1989). The Boring Lava is of Pliocene/Pleistocene age and consists predominantly of basalt and basaltic andesite.

The Pleistocene Recent Alluvium sediments in Portland Basin include Portland Hills Silt, volcanoclastic conglomerates, terrace deposits, catastrophic flood deposits, and recent river alluvium. Also, mudflow and pyroclastic materials of Mt. St. Helens eruption are present in the Portland Basin. The Portland Silt is a brown, micaceous, clayey, aeolian silt. Volcanoclastic conglomerates overlie the Boring Lava and consist of tuff and breccia interbedded with conglomerates and sandstone (Trimble, 1963). Terrace deposits are present in the Portland Basin area and consist of volcanic gravel, felsic sandstone, and volcanic debris flow.

The catastrophic flood deposits are present in the area and consist of sand, gravel, cobble, and boulder in a micaceous silty and clayey matrix. The recent alluvium deposit of the Columbia River in made up of interbedded silt and sand. Details are provided in the SI report (SAIC, 1991).

4.3 SOILS

Pilchuck soils, a dark grayish brown to dark brown soil with high permeability, underlies most of the Base. The Sauvie-Rafton soils, a poorly drained, silty, loam soil, occupies the southeastern corner of the Base. The surficial soil is approximately 15 inches thick and is underlain by a dark brown, silty loam to a depth of 60 inches. Most of the areas on the base have been elevated with dredged river sediment and floodplain soils with a high silt and cobble content.

4.4 SURFACE WATER

The Base is located between two main surface bodies: Columbia River on the north and the Columbia Slough (Upper and Lower) on the south. Willamette River is located approximately 4-½ miles southwest of the Base. Surface runoff from the Base is directed toward the Upper

Columbia Slough (Figure 1.1) via the Base Main Drainage Ditch (IRP Site No. 4). According to the Bureau of Environmental Services Report (1988), the Upper Columbia Slough is physically isolated from the lower slough and the Columbia River by the weir. Water can be pumped over the weir from the upper slough to the lower slough. The 100-year flood plain elevation for the area surrounding the Base is 14 feet mean sea level (MSL), and the average water level in the upper slough is 8 feet MSL. The Base elevation varies from 13 to 20 feet MSL (SAIC, 1991).

4.5 GROUNDWATER

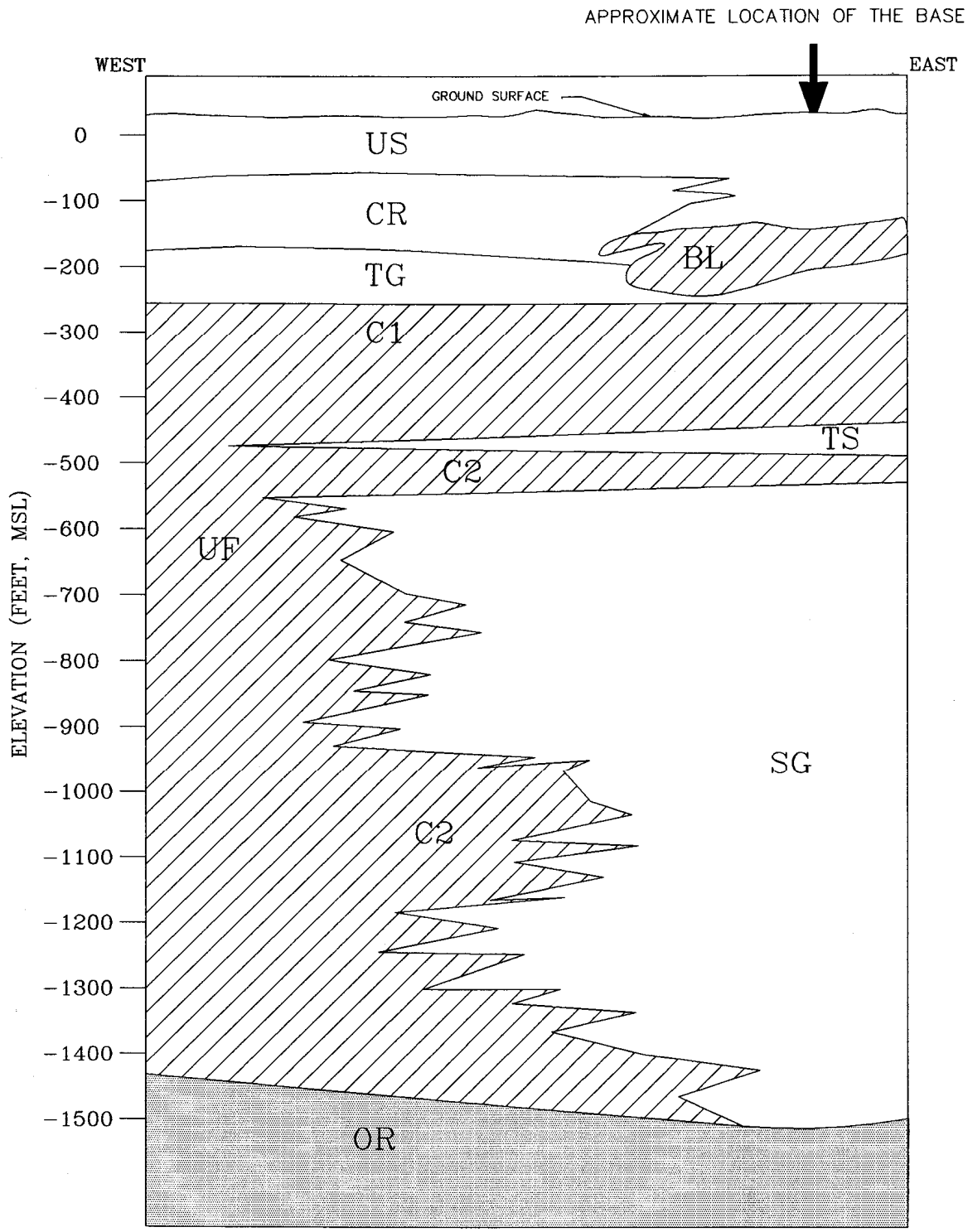
There are six hydrostratigraphic units in the Portland Basin area (Swanson et al., 1993). These units are as follows:

- Unconsolidated sedimentary aquifer (overbank deposits and the Columbia River Sand Aquifer);
- Troutdale gravel aquifer;
- Confining unit 1;
- Troutdale sandstone aquifer;
- Confining unit 2; and
- Sand and gravel aquifer.

The Base is located east of the western boundaries of confining unit 1; Troutdale Sandstone aquifer; confining unit 2; and the sand and gravel aquifer (Figure 4.1). To the west of the base, the Troutdale Sandstone aquifer pinches out; the sand and gravel aquifer interfingers with the confining unit 2; and the confining unit 1 and 2 form a single unit called undifferentiated fine-grained unit (Foster Wheeler Environmental Corporation, 1995). The Boring Lava unit may also be present as a perched aquifer in the area.

The unconsolidated sedimentary aquifer is approximately 200 to 275 feet thick and consists of the Columbia River Sand, overbank deposit, or the floodplain aquitard. At the Base, Columbia River Sand aquifer consists of micaceous siltstone and sandstone with wood fragments and gravel. Coarsening upward sequences characteristic of the channel deposit is common at the bottom of the unit. The overbank deposit (floodplain deposits) consists of light green-brown , yellow-brown silty clay and fine, sandy silt.

The Troutdale gravel aquifer is approximately 25 to 50 feet thick, consolidated, and consists of pebbly, cobbly conglomerates with greenish gray-brown, clayey, silty, sandy matrix. It is



US = UNCONSOLIDATED SEDIMENTARY AQUIFER
TG = TROUTDALE GRAVEL AQUIFER
C1 = CONFINING UNIT 1
TS = TROUTDALE SANDSTONE AQUIFER
CR = COLUMBIA RIVER SAND
C2 = CONFINING UNIT 2
SG = SAND AND GRAVEL AQUIFER
UF = UNCONSOLIDATED FINE-GRAINED SEDIMENT
OR = OLDER ROCKS
BL = BORING LAVA

NOT TO SCALE

SOURCE: SAIC, 1991

FIGURE 4.1

SCHEMATIC HYDROSTRATIGRAPHIC COLUMN WITHIN PORTLAND BASIN
142nd FG, Oregon ANG
Portland International Airport
Portland, Oregon

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hydraulically connected with the Columbia River Sand aquifer. Granitic and quartzite clasts are common in the unit and compromise approximately 30 percent of the rock fragments.

The confining unit 1 aquifer is about 200 feet thick and consists of dark gray-brown to gray-brown siltstone, claystone, and layers of vitric sandstone (up to 3 feet thick). A clay layer with high natural gamma signature is present at the bottom of the unit. Troutdale sandstone aquifer, a vitritic sandstone and conglomerate, unit is present in the Portland Basin and is approximately 50 feet thick. It consists of two units: the upper and the lower units. The upper unit is a vitric sandstone with silty clay lenses and a mixture of basaltic glass and clay. The lower unit consists of quartzite-bearing basaltic gravel conglomerates with a silty, sandy vitric-lithic matrix. Sand lenses of various thicknesses are present throughout the unit.

The confining unit 2 aquifer is about 25 feet thick and slopes toward the west. It consists of olive-gray, silty clay with lenses of basaltic sand and claystone layers at the bottom. The unit thickens toward the west and becomes part of the undifferentiated fine-grained unit. Confining unit 2 is hydraulically in communication with the Troutdale sandstone aquifer (Swanson et al., 1993).

The sand and gravel aquifer consists of a thick, silty, gravelly sand which fines downward. The unit is approximately 976 feet thick and slopes toward the northwest. The clay content increases toward the bottom of the unit. The upper unit of the sand and gravel aquifer is about 120 to 200 feet thick and consists of coarse-grained, consolidated, quartzite-bearing, basaltic gravel and cobbles with black vitric sand on top and muscovite laminae at the bottom. The lower unit is a fine-grained micaceous, quartzose, basaltic sand with blue-gray silt and sandy clay lenses.

The older Tertiary age rocks in the Portland Basin include the Columbia River Basalt Group, Skamania Volcanics, Goble Volcanics, Pittsburgh Bluff marine sediments, Scappoose Formations, and the Waverly Heights basalt. The older Tertiary rocks in the Portland Basin area are classified as a poor conductors of groundwater and are not used as water supply horizons.

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SECTION 5.0 PERMITS

Prior to drilling activities, all fees, permits, or licenses required by ODEQ will be applied and/or paid. Notices of Intent to Drill will be filed with ODEQ as soon as possible to speed the WP implementation. As a part of mobilization activities, a general review of underground utility maps will be made, and Call First Utility Locations will be contacted to survey and clear utility locations in the vicinity of all drilling activities. Digging permits will be completed and submitted to the Civil Engineering Department for approval.

In the event any proposed drilling locations are found to interfere with buried utilities, the boring location(s) will be relocated as close as possible to the original location. Relocated drilling locations will be approved by the on-site geologist, HAZWRAP PM, and 142nd FG Civil Engineering Department. Proposed drilling locations will be staked in the field for inspection and approval by the 142nd FG Civil Engineering Department. This procedure will minimize the likelihood of damage to buried utilities. Once all activities have been completed at each specific drilling point, the location will be staked to facilitate any subsequent surveying.

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SECTION 6.0 INVESTIGATIVE APPROACH

6.1 WORK PLAN AND DATA QUALITY OBJECTIVES

The main objectives of the RI is to acquire data of sufficient quality to (1) define the extent of confirmed environmental contamination; (2) prepare a screening risk assessment that addresses human health and the environment; (3) support informed decisions on remedial technologies proposed; and (4) to make recommendations for additional investigations and/or no further action decision documents (See Section 1.1). These objectives require quantification of the horizontal and vertical extent of contamination, the magnitude of contamination, and the migration of any contaminants from the sites.

The required data will be collected through integration of expedited sample collection, on-site laboratory, off-site laboratory chemical analyses, and data interpretation. The overall investigative approach to be implemented under this RI is presented in Figure 6.1. It illustrates an accelerated methodology for sample collection and interpretation. The goal is to obtain as much information as possible using innovative technologies and procedures, such a direct push technology (DPT), on-site laboratory analysis, and a real-time data management system to achieve the project objectives quickly and efficiently. Data quality will be maintained at the highest practical levels for the on-site laboratory. Off-site laboratory analyses will be performed to confirm the applicability and validity of the on-site analysis. A table has been generated for each site depicting the type and number of samples to be collected, the number of locations to be sampled, the nature of contaminants, the possible affected media, the sample collection methodology, and the required chemical analyses.

DQOs for the project require fixed-base laboratory data and field screening data. Fixed-base laboratory DQOs will meet definitive data quality requirements as defined in Data Quality Objectives Process for Superfund, Interim Final Guidance, (EPA/540/G-93/071, 1993), and guidance for planning for data collection in support of environmental decision making using the data quality objectives process (EPA QA/G-4, 1993). Fixed-base laboratory data reporting requirements include Contract Laboratory Program (CLP) type summary forms and supporting documentation required for a CLP data package without raw data. Field Gas Chromatograph/Mass Spectrometer (GC/MS) screening data will meet screening level data quality requirements as defined by EPA/540/G-93/071.

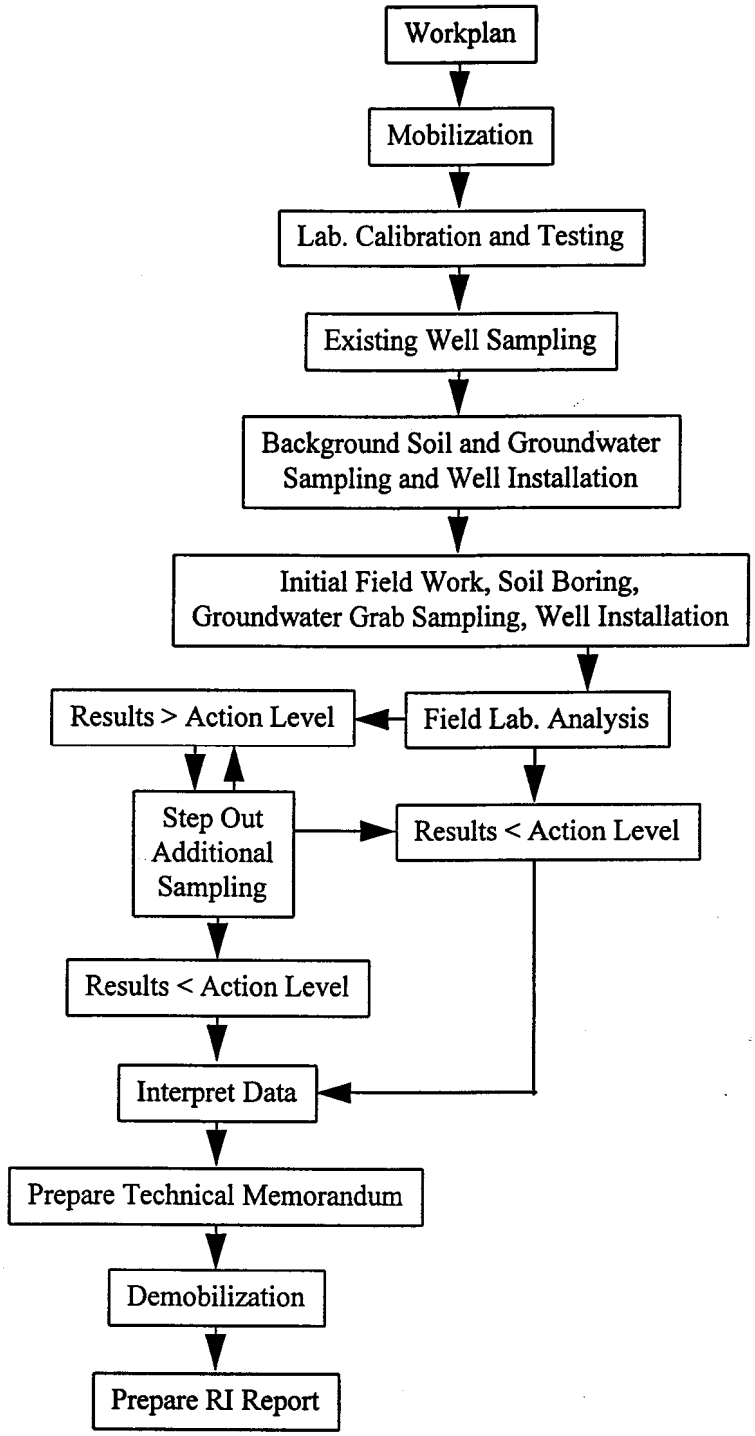

Figure 6.1 — **Overall RI Investigative Approach**
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

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DQOs for evaluation of data precision, accuracy, representativeness, comparability, and completeness are described in detail in the QAPP. Field generated data will be available at the end of each day to the project chemist, project manager, and HAZWRAP for evaluation. The evaluated data will then be returned to the field laboratory for correction, if required, and then be issued to HAZWRAP in a Technical Memorandum.

6.2 GENERAL APPROACH - SAMPLING STRATEGY AND RATIONALE

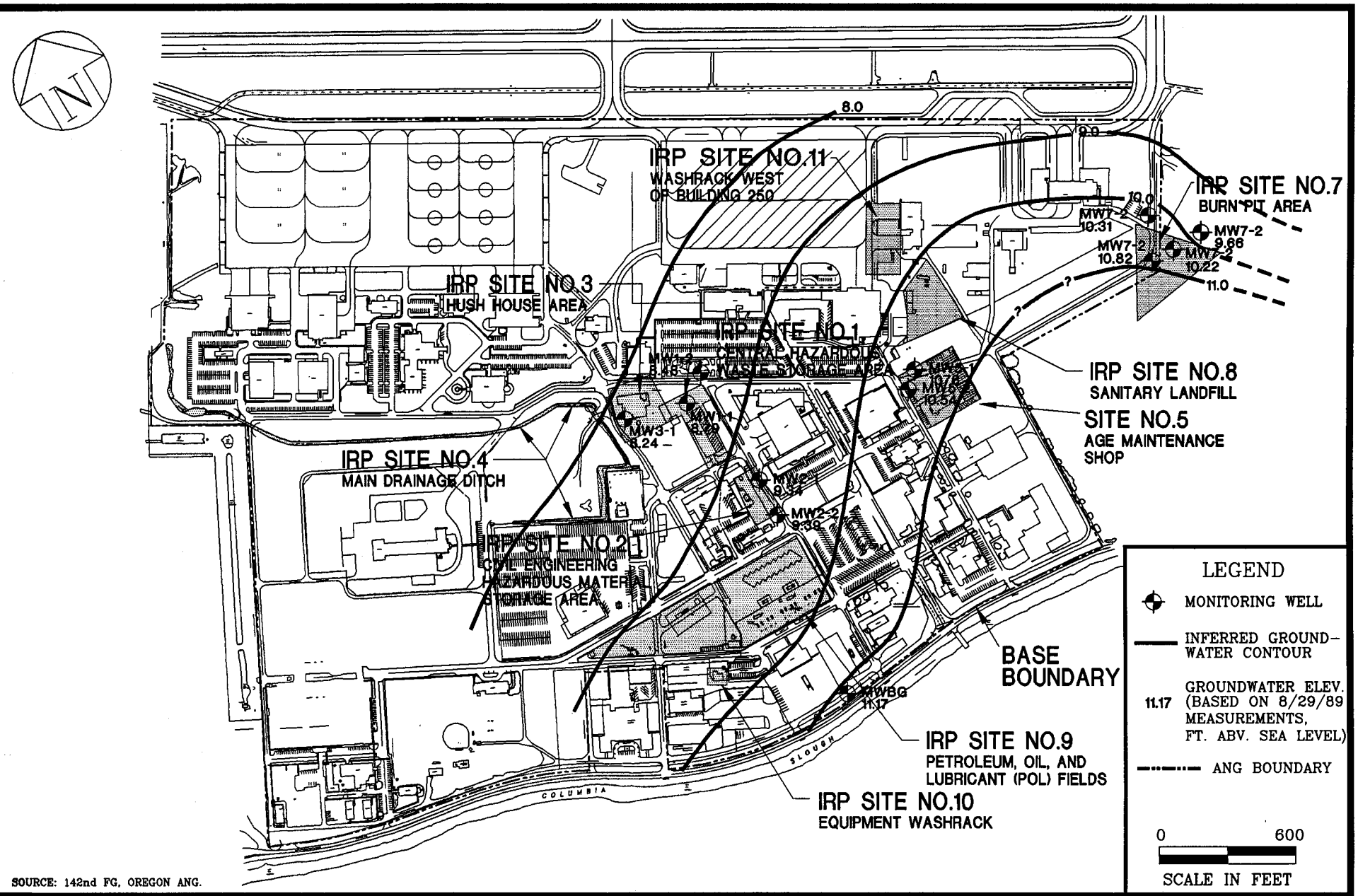
6.2.1 Groundwater Snapshot

In 1989, the shallow groundwater (5-15 ft bgs) across the Base was flowing in a north-northwest direction, based on groundwater elevation data taken from the piezometers and monitoring wells installed during the SI. Elevations were taken on August 29, 1989, and a potentiometric map was created using the groundwater levels (Figure 6.2). The flow at IRP Site No. 7 appears to have a northeastern component that is influenced by a drainage ditch located near the site.

The RI field program will be initiated by taking Base-wide water level measurements from existing piezometers and monitoring wells installed during previous investigations. The data will be used to construct a potentiometric map for the purpose of calculating the current groundwater gradient and flow direction. This map will be used to select the optimum of locations for the background soil borings, monitoring wells, and DPT points.

6.2.2 Project Action Goals

Chemical data obtained from the background samples collected during the RI will be evaluated and integrated with the background data collected during the SI to establish project action goals (PAGs). These action goals will be used to help establish the extent of contamination present at each site and to establish criteria to be incorporated into a screening risk assessment. These goals will establish the contaminant baseline, used to drive the decision process in deciding whether the extent of contamination has been delineated. In addition, chemical data will be processed through a database system that is linked to a mapping program, which will result in the construction of current isoconcentration maps. Data will be transferred to HAZWRAP electronically and presented as tables, graphs, maps, and narratives.



SOURCE: 142nd FG, OREGON ANG.

FIGURE 6.2

PL_FIG\ST_SITES

POTENTIOMETRIC MAP

142nd FG, Oregon ANG
Portland International Airport
Portland, Oregon

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6.2.3 Primary, Secondary and Tertiary Phase Approach

After the PAGs are established, the investigation will proceed in determining the horizontal and vertical extent of contamination at each site. This will be accomplished by implementing a three phase investigative approach. The phases are identified as the primary point phase, the secondary point phase and the tertiary point phase. All phases will be implemented during one mobilization.

The investigation will begin with the installation of the primary soil (if applicable) and groundwater points at each site. All primary points will be driven to just below the top of the water table to collect groundwater samples. At least two soil samples and one groundwater sample will be collected from each primary point. Both soil (if applicable) and groundwater points will be collected from the same location. All samples will be collected and delivered to the on-site laboratory for analysis. Approximately five percent of all samples, independent of the site, will be collected as duplicate samples and delivered to an off-site laboratory for confirmational analyses. The analytical methods used by the off-site laboratory for VOC and SVOC analyses will be the same methods used in the on-site lab.

The on-site laboratory will be equipped with a gas chromatograph/mass spectrometer (GC/MS) Analyses conducted by the on-site lab will be for VOCs and SVOCs only, since they are the primary contaminants of concern at all sites. The on-site laboratory will allow the field team to make real time decisions and allow the investigation to proceed in an expedited manner to assess the extent of site specific contamination. At sites where secondary contaminants of concern are metals, TPH, or PCBs, analyses will be conducted at the off-site laboratory only. The small number of samples to be analyzed for the secondary contaminants do not support the costs of setting up the on-site laboratory for the analyses. The target analytes for each site are specifically discussed in this section.

After completing the installation of the primary points, the analytical results will be reviewed and compared to the established PAGs. This comparison will be conducted for the media investigated at each site to determine if the site has been fully delineated. As a result of the comparison, it will be determined whether to proceed with a secondary point phase.

If groundwater contamination is identified above the PAGs during the primary point phase, a vertical profile point will be installed to determine the vertical extent of groundwater contamination. The vertical profile point will be located closest to the primary point that identified the highest level of contamination . Vertical groundwater sample collection will begin

approximately 10 feet below the top of the water table and will continue up to a maximum depth of 40 feet bgs.

If compounds are found in the primary point phase above the PAGs (including the vertical profile), the secondary point phase will be implemented. These secondary points will be located downgradient of the primary points in attempt to fully define the area of contamination. These secondary points will only sample media that requires further delineation of compounds. It is anticipated that only groundwater will be sampled at secondary points because the locations will be further downgradient of source areas. However, if the results of the primary phase indicate that the soil unit has not been delineated, then soil samples will be collected from the secondary points. The sequence of the secondary phase will proceed in the same manner as for the primary point phase, with one exception. The samples collected during this phase will only be analyzed for the compounds identified above the PAGs during the primary phase.

Secondary vertical profile points will be installed after the completion of the secondary point phase investigation. These points will be implemented only if contamination is identified in the primary vertical profile points. The samples collected from these points will only be analyzed for the compounds identified above PAGs in the primary phase of vertical profiling and secondary points phase.

If the extent of contamination is undefined at the completion of the secondary phase, a tertiary phase may be performed. However, tertiary points are not illustrated in the basic primary and secondary phase field program (tables and figures) but will be implemented if secondary points remain unused after the basic program has been completed and contamination has still not been delineated.

Groundwater quality parameters that will be measured in the field at all groundwater sampling locations are temperature, conductivity, turbidity, and pH. Additional groundwater quality parameters that are useful for preparing the FS will be measured at up to 4 locations/site and at 2 background sites. These include field measurements of dissolved oxygen and carbon dioxide, and off-site laboratory analyses for nitrate, nitrite, ammonia, and phosphorus (reactive and total).

All soil samples will be screened for organic vapors using a photoionization detector (PID). If the soil media is investigated at a site, soil quality parameters useful for preparing the Feasibility Study will collected at up to four soil samples/site and two background samples. This includes

samples collected for off-site laboratory analyses of nitrate, nitrite, and phosphorus (reactive and total); field meters will be used to collect soil gas measurements of oxygen and carbon dioxide.

At the end of each phase the data and recommendations on how to proceed will be presented to HAZWRAP and the HQ ANG/CEVR. Agreement will be reached before initiating the next phase of investigation at a given site.

6.2.4 Sediment and Surface Water Sampling

Sediment and surface water samples will be collected from specific sites for risk assessment purposes. The sampling will be done independently of the background and phase investigations.

6.2.5 Antecedent Water Level Measurement

In addition to the initial groundwater snapshot, at least two Base-wide snapshots are anticipated to be conducted. This will occur after the installation of all monitoring wells. Water level measurements will be taken in association with normal field activities; after well installation, before and after well development, and prior to sampling events. The water level elevations will be used to calculate the groundwater gradient and the flow direction, and help in the location and collection of groundwater samples.

6.2.6 Surveying

Sediment, soil boring, surface water, groundwater grab sample locations, and permanent monitoring wells will be surveyed by a surveyor registered in the State of Oregon. Horizontal accuracy shall be plus or minus 0.1 ft and vertical accuracy shall be within plus or minus 0.01 ft. All surveyed data will be presented in the X, Y and Z axes.

6.2.7 Analytical Methods

The primary contaminants of concern are associated with fuels (gasoline and JP-4) and solvents as determined by historical records search and results of the SI. Secondary contaminants of concern are considered to be metals, TPH and PCBs. The on-site field laboratory will be equipped to analyze samples for VOCs and SVOCs using a GC/MS to provide qualitative and quantitative results. Both soil and groundwater samples will be analyzed at the on-site laboratory. The minimum QA/QC requirements that will be followed are specified in DOE/HWP-65R1 for

HAZWRAP Level B screening. The objective for on-site laboratory analysis for this project is to provide high quality data on which to base real-time field decisions. In order to achieve this objective, additional QC samples and protocols, not required under HAZWRAP Level B field screening criteria, will be employed as described in the QAPP.

Fixed-base laboratory analyses will be conducted in accordance with HAZWRAP Level C protocols. SW-846 Method 8260 will be used for soil and water VOC analyses. SW-846 Method 8270 will be used and soil and water SVOC analyses. SW-846 Method 8080 will be used for soil and water PCB analyses. The CLP analyte lists located in the QAPP (Tables 4.1- 4.5) will be used when performing VOC, SVOC, and PCB methods. SW-846 Method 6010 will be used for soil and water metals analyses. SW-846 Method 7470 will be used for mercury analysis (water) and SW-846 Method 7471 will be used for mercury analysis (soil). TPH will be analyzed according to modified SW-846 Method 8015 for soil only. Details concerning the analytical methods and detection limits are provided in the QAPP (Appendix B).

Quality control samples (soil and water) will be collected and analyzed by field GC/MS and fixed-base laboratories. The types and the frequency of the QC samples for field and fixed-base laboratories are as follows:

- Equipment blanks; 10% of samples/matrix/equipment;
- Field blanks; 1/source/event;
- Duplicates; 10% of samples/matrix;
- Matrix spike/Matrix spike duplicates; 5% of samples/matrix; and
- Trip blanks; one per sample shipment cooler containing VOC samples.

Fixed-base laboratory soil and groundwater samples for nitrate, nitrite, ammonia, and phos phorus (total and reactive) analyses will have no associated QC sampling performed.

6.2.8 Geotechnical Samples

Two sets of geotechnical samples will be collected at each site where soil is being investigated. These samples will be measured for grain size analysis (ASTM D422) and permeability (ASTM D2434). If the samples are primarily clay and silt the Atterberg Liquid Limit, Plastic Limit, and Plasticity Index (ASTM 4318) will also be measured.

6.2.9 Aquifer Tests

Aquifer slug tests will be performed on all monitoring wells installed as part of this field effort. Rising head tests will be performed by depressing the water table with pressure or pumping, then monitoring recovery of the aquifer with a pressure transducer. The data measured from the pressure transducer will be recorded on a data-logger recorder. This data will be analyzed using the Bower and Rice (1976) or Hvorslev (1951) methods for unconfined aquifers.

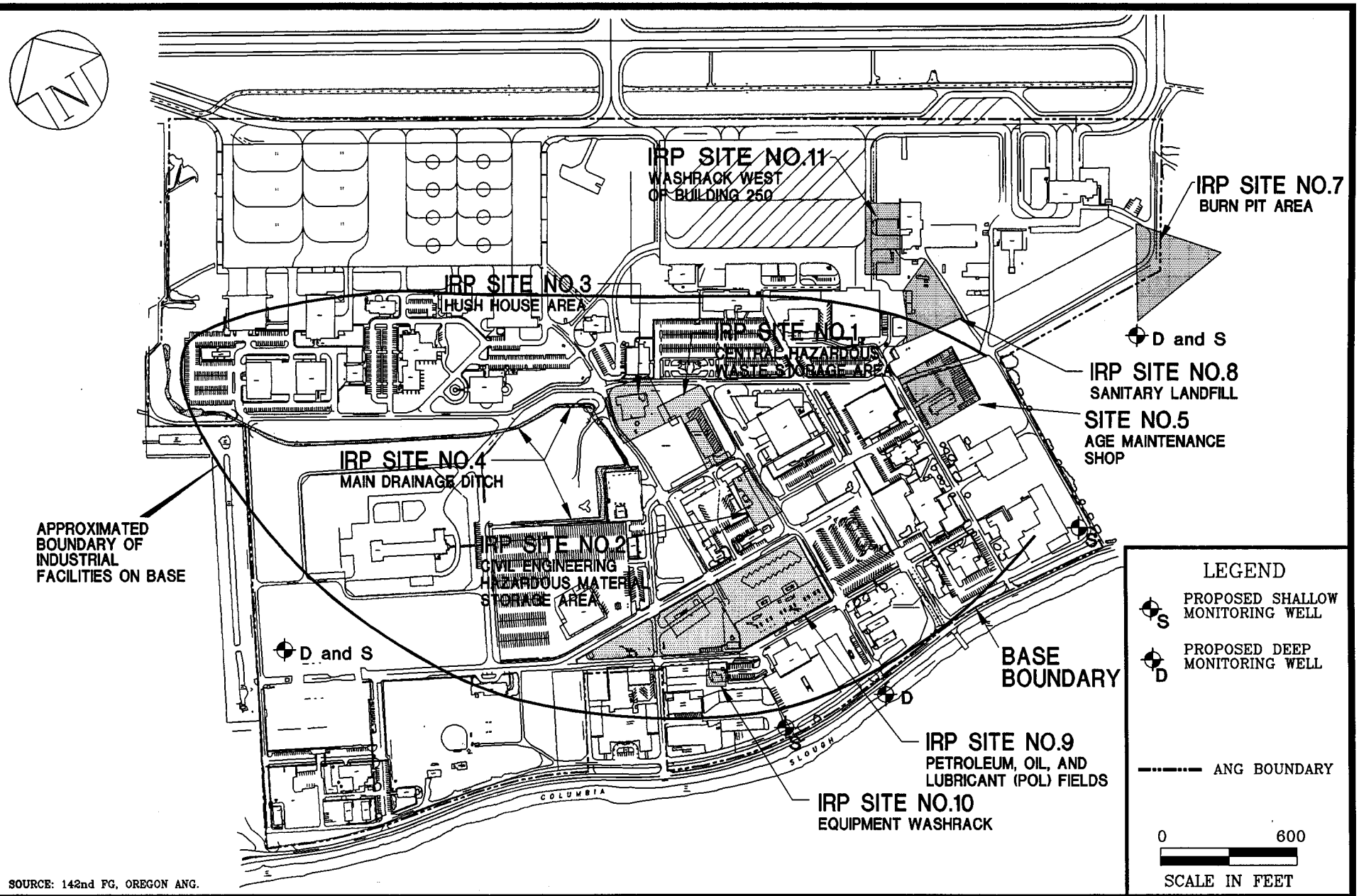
6.3 RI SITE-SPECIFIC SAMPLING STRATEGY

6.3.1 Base Background Investigation

Background soil and groundwater samples will be collected as part of the RI. Results of the background investigation conducted during this mobilization will be incorporated into the background data collected in the SI to establish PAGs. It also allows a comparison of data collected from individual sites with the background information to establish criteria for the screening risk assessment, and if necessary, remedial actions. A detailed description of the background sampling activities and results are provided in Subsection 3.2.11 of this document.

A total of seven monitoring wells will be drilled and installed at five separate locations (two cluster locations) on and off the Base for the purpose of collecting both soil and groundwater data for the background study (Figure 6.3). Access for offsite loctions will be obtained by Base personnel. Of the seven wells to be drilled four will be completed as shallow wells screened across the water table and three will be completed as deep wells with the bottom of the screen set at 40 feet. Soil samples from all the shallow wells will be collected continuously from the surface to the water table (approximately 5-10 ft) for the purpose of obtaining lithologic information. At the locations where the deep well is located adjacent to a shallow well, continuous soil sampling will be initiated at the water table. Soil samples will be screened with a PID in the field before any sample is collected for the laboratory analyses. If contamination is identified by the PID field screening, the boring will be appropriately abandoned and a new location selected.

Three soil samples will be collected from a boring at each of the five separate locations. One sample will be collected from the surface (0 to 6 inches) to satisfy the risk assessment requirements. A second sample will be collected from an intermediate depth between the surface



SOURCE: 142nd FG, OREGON ANG.

FIGURE 6.3

PL_FIG\ST_SITES

PROPOSED BACKGROUND SOIL AND GROUNDWATER SAMPLING LOCATIONS

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and approximately five feet based on field screening, and a third sample will be collected from immediately above the water table.

Two rounds of groundwater samples will be collected from the background monitoring wells installed as part of this field effort and existing background well MWBG. The first round will be collected after the installation of the background monitoring wells. The second round will be collected at the end of the RI field effort. All soil and groundwater samples will be analyzed by the field laboratory for VOCs and SVOCs. A selected number of samples analyzed for VOCs and SVOCs at the on-site lab (approximately 5%) will also be analyzed at the fixed-base laboratory (refer to QAPP). At least one sample from each background groundwater sampling round will go to the fixed-base laboratory for analysis. All samples collected during the background investigation will also be analyzed at the fixed-base laboratory for PPMs (filtered and unfiltered), PCBs, and TPH (soils only). The background soil and groundwater sampling program at the Base is presented in Table 6.1.

Two background soil locations will also be sampled for soil quality parameters including nitrate, nitrite, ammonia, and phosphorus (total and reactive). Soil gas measurements of oxygen and carbon dioxide will be collected at these locations. Two background groundwater locations will be sampled for water quality parameters including nitrate, nitrite, ammonia, phosphorus (total and reactive), dissolved oxygen, and carbon dioxide.

6.3.2 IRP Site No. 1 - Central Hazardous Waste Storage Area

IRP Site No. 1 is located at the southwest corner of the intersection of O'Conner Way and Hampshire Blvd., near Bldg. 1131 (Figure 6.4). IRP Site No. 1 was used to store 55-gal drums of waste oils, fuels, solvents, shop waste, and electrical transformers. According to the results of the SI, accidental spills or leaks from containers have impacted the groundwater in an area adjacent to Bldg. 1131. Two areas of concern will be the target of the RI. The first area is located northeast of Bldg. 1131 where high concentrations of methylene chloride and bromochloromethane were detected at 1,500 μg/L and 140,000 μg/L, respectively, in the groundwater samples collected from MW1-1. The second area is located southwest of Bldg. 1131 where the compounds bromochloromethane and methylene chloride were detected in soil samples collected at the water table from SB1E-14.

A risk assessment conducted after the SI indicates the soils at IRP Site No. 1 pose no threat to human health and the environment. Therefore, only the groundwater will be investigated as part

Table 6.1
Background Sampling Program
Oregon Air National Guard, Portland, Oregon

Background	Number of Locations	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM*	PCB	TPH
Sediment	-	-	-	-	-	-	-	-
Surface Soil	5	5	VOC SVOC	-	-	5	5	5
Subsurface Soil	5	10	VOC,SVOC	-	-	10	10	10
Total Soil Samples	-	**15**	-	**1 MAX**	**1 MAX**	**15**	**15**	**15**
Primary Points	-	-	-	-	-	-	-	-
Secondary Points	-	-	-	-	-	-	-	-
Monitoring Well-Shallow	4	8	VOC,SVOC	1 MIN	1 MIN	16	8	-
Monitoring Wells- Deep	3	6	VOC SVOC	1 MIN	1 MIN	12	6	-
Existing MW	1	2	VOC SVOC	-	-	4	2	-
Total Water Samples	-	**16**	-	**2 MIN**	**2 MIN**	**32**	**16**	-

Notes: VOCs = Volatile Organic Compounds
PCB = Polychlorinated Biphenyl
MW = Monitoring well
Min = Minimum
PPMs = Priority Pollutant Metals
SVOCs = Semi volatile organic compounds
TPH = Total Petroleum Hydrocarbons
Max = Maximum
*PPM will include filtered & unfiltered groundwater samples.

of the RI. The water table was encountered at a depth of approximately 5 to 7 ft bgs during the SI. The proposed scope of work to be conducted under this WP is provided below.

The primary phase will consist of up to seven points in an initial attempt to delineate the extent of groundwater contamination. Four of the points will be located in the area of MW1-1, and three points will be placed in the area southwest of Bldg. 1131 in the vicinity of SB1E-14.

The analytical results will be compared to the established PAGs. If contamination is identified above an action goal, up to seven secondary points and three primary vertical profile points will then be performed. The analyses to be conducted on the secondary points will be for the compounds detected in the primary phase only. Currently, four secondary points and two primary vertical points are designated for the northeast area, while three secondary points and one primary vertical point are designated for the southwest area. However, it is possible that, based on field results, some of the points designated for one area may not be needed and may be moved to the

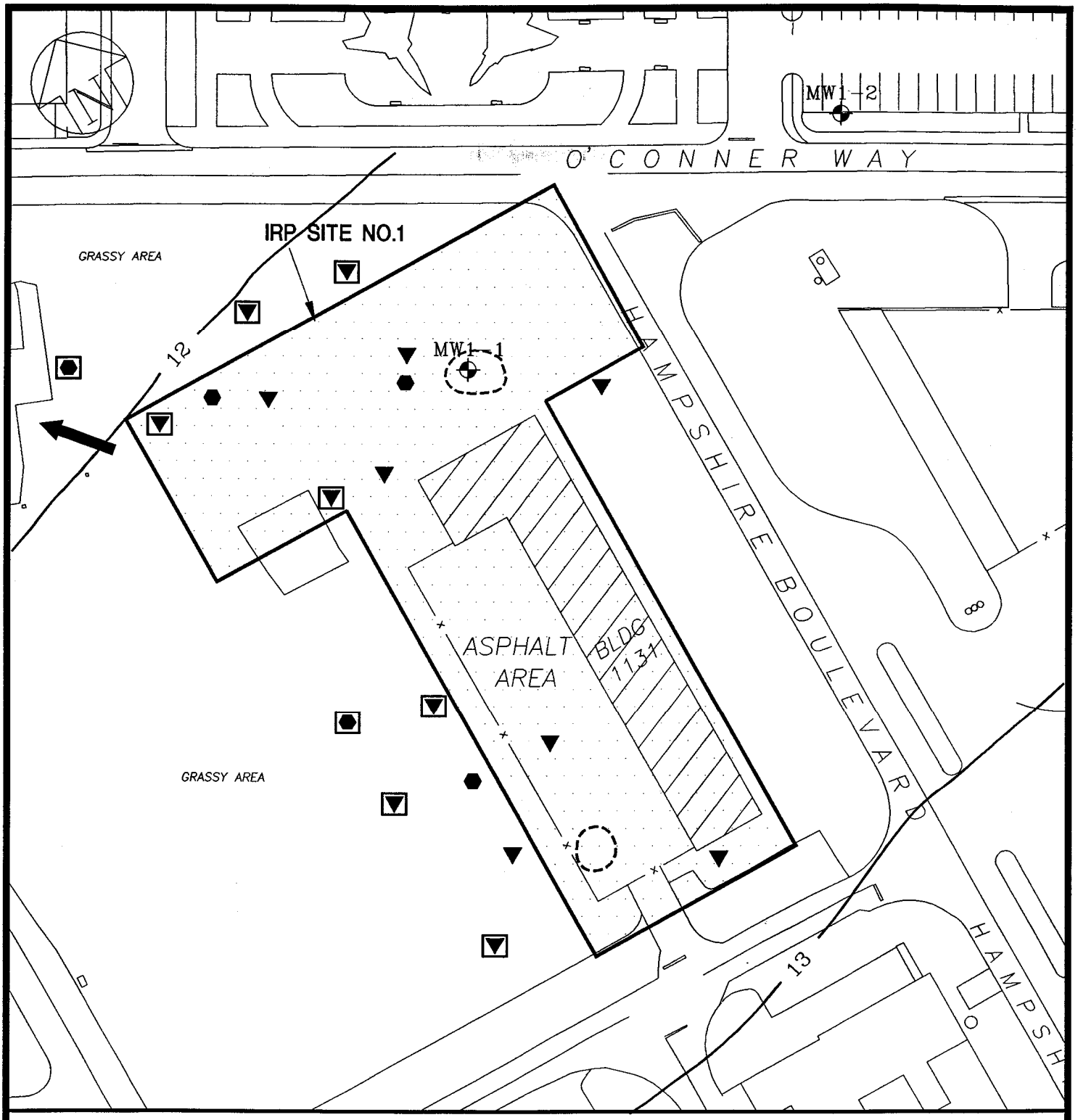

FIGURE 6.4

PL_FIG\ST_1-2

IRP SITE NO.1: PROPOSED RI GROUNDWATER SAMPLING LOCATIONS

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other areas where needed. This decision will be made in the field with the concurrence of HAZWRAP and the HQ ANG/CEVR.

Depending on the results of the previous phases, an additional two secondary vertical profile points, one for each area, may be available. One groundwater sample will be collected from each of the points terminated at the water table . Up to three samples will be collected from the vertical profile points. The existing monitoring wells at the site, MW1-1 and MW1-2, will also be purged and sampled. All groundwater samples will be analyzed in the field laboratory for VOCs and SVOCs. A selected number of samples (approximately 5%) will be analyzed by the fixed-base laboratory. IRP Site No. 1 groundwater sampling program is presented in Table 6.2.

Table 6.2
IRP Site No. 1 Sampling Program
Oregon Air National Guard, Portland, Oregon

Site No. 1	Number of Locations	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM	PCB	TPH
Sediment	-	-	-	-	-	-	-	-
Surface Soil	-	-	-	-	-	-	-	-
Subsurface Soil	-	-	-	-	-	-	-	-
Total Soil Samples	-	-	-	-	-	-	-	-
Surface Water	-	-	-	-	-	-	-	-
Primary Point	7	7	VOC,SVOC	-	-	-	-	-
Secondary Point	7	7	VOC,SVOC	-	-	-	-	-
Primary Vertical Profile	3	9	VOC,SVOC	-	-	-	-	-
Secondary Vertical Point	2	6	VOC,SVOC	-	-	-	-	-
Existing MW	2	2	VOC,SVOC	-	-	-	-	-
Total Water Samples	-	**9 MIN/ 31 MAX**	-	**2 MAX**	**2 MAX**	-	-	-

Notes VOCs = Volatile Organic Compounds
PCB = Polychlorinated Biphenyl
SVOCs = Semi volatile organic compounds
Min = Minimum
PPM = Priority Pollutant Metals
MW = Monitoring Well
TPH = Total Petroleum Hydrocarbon
Max = Maximum

Four groundwater locations will be sampled for water quality parameters including nitrate, nitrite, ammonia, phosphorus (total and reactive), dissolved oxygen, and carbon dioxide.

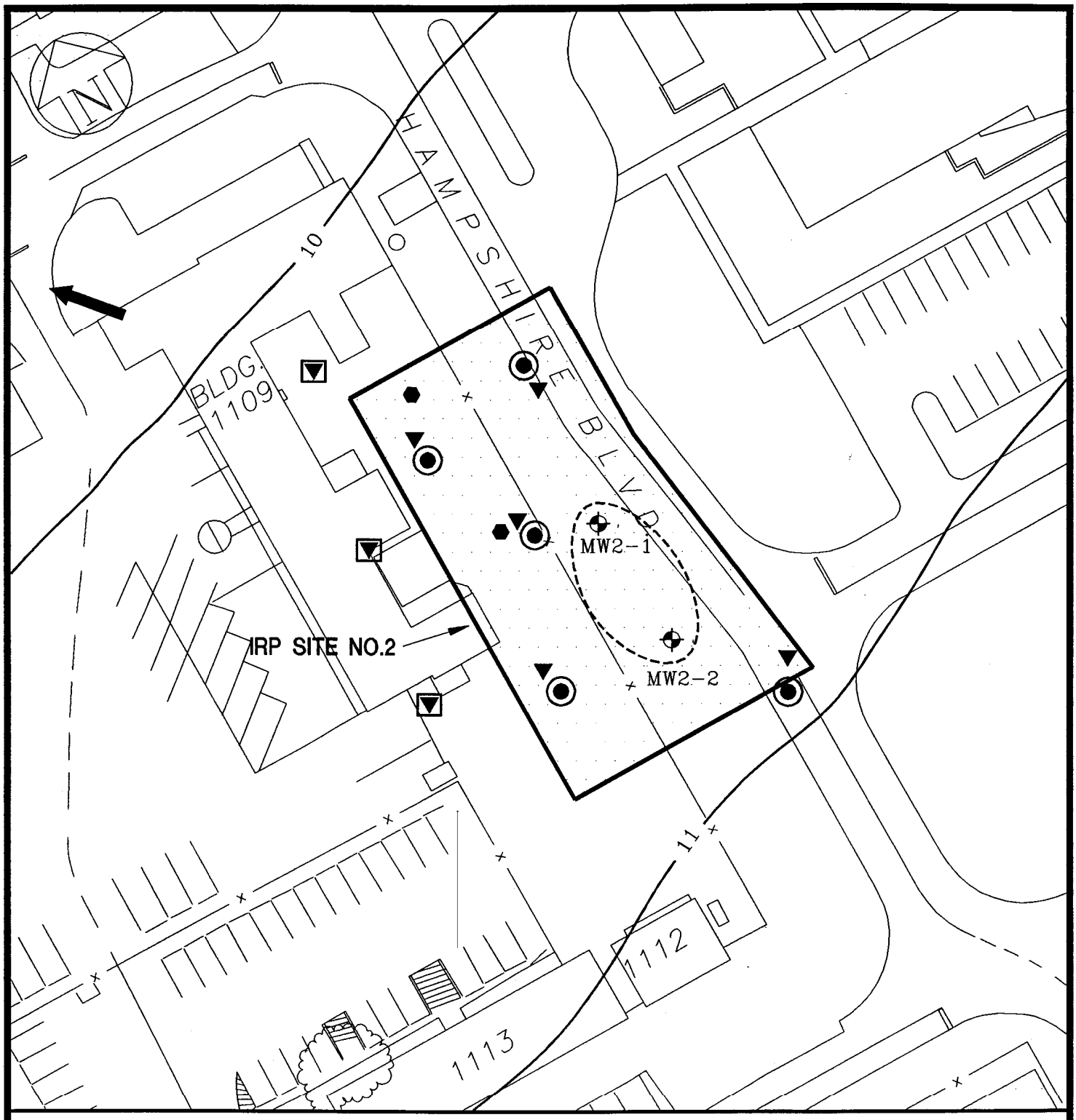
6.3.3 IRP Site No. 2 - Civil Engineering Hazardous Materials Storage Area

IRP Site No. 2 is the former Civil Engineering Hazardous Materials Storage Area located adjacent to Bldg. 1109 (Figure 6.5). IRP Site No. 2 consisted of an open walled shed with a gravel floor. Drums of chemicals, including solvents and methyl ethyl ketone, were stored on wooden pallets. Accidental spills or leaks from containers have impacted the groundwater and possibly the soil. According to the SI, source areas for soil contamination have not been fully delineated and characterized. Results of analyses conducted on groundwater samples collected from the two monitor wells installed at the site indicate up to 710 μg/L of trichloroethene . The water table was encountered at a depth of approximately 5 to 7 ft bgs (SAIC, 1991). Subsection 3.2.2 provides additional information regarding the SI results. Both the soil and groundwater will be investigated at this site in the RI.

The primary phase at IRP Site No. 2 will consist of up to five points positioned upgradient and downgradient of the two contaminated monitoring wells. Two soil samples per primary point will be collected and submitted to the on-site laboratory for analyses. One sample will be collected from the surface to approximately five feet bgs and will be selected based on the highest PID reading, and one sample will be collected from the interval immediately above the water table. One groundwater sample per point will be collected from just below the top of the water table for on-site laboratory analyses. In addition, three surface soil samples will be collected at the site at intervals of 0 to 6 inches.

The analytical results will be compared to the established PAGs. If contamination is identified above a PAG, up to three secondary points and two primary vertical profile points will then be emplaced. The analyses to be conducted on the secondary points will be for the compounds detected in the primary phase only. All the locations to be conducted in this phase will be placed downgradient of the two monitoring wells.

One groundwater sample each will be collected from the points terminated at the water table. Up to three samples will be collected from each of the vertical profile points. The existing monitoring wells at the site, MW2-1 and MW2-2, will also be purged and sampled. All samples will be analyzed in the on-site laboratory for VOCs and SVOCs. A selected number of samples (approximately 5%) will be analyzed by the fixed-base laboratory. IRP Site No. 2 groundwater sampling program is presented in Table 6.3.



LEGEND

- EXISTING MONITORING WELL
- PROPOSED GROUNDWATER GRAB SAMPLE
- SECONDARY PROPOSED GROUNDWATER GRAB SAMPLE
- FENCE LINE
- GROUNDWATER FLOW DIRECTION
- AREA OF KNOWN GROUNDWATER CONTAMINATION
- PROPOSED GROUNDWATER VERTICAL PROFILE
- SECONDARY PROPOSED GROUNDWATER VERTICAL PROFILE
- PROPOSED SOIL SAMPLE LOCATION
- 12 TOPOGRAPHIC CONTOUR (IN FEET)

0 50

SCALE IN FEET

FIGURE 6.5

PL_FIG\ST_1-2

IRP SITE NO.2: PROPOSED RI SOIL AND GROUNDWATER SAMPLING LOCATIONS
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Table 6.3
IRP Site No. 2 Sampling Program
Oregon Air National Guard, Portland, Oregon

Site No. 2	Number of Locations	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM	PCB	TPH
Sediment	-	-	-	-	-	-	-	-
Surface Soil	-	3	VOC,SVOC	-	-	-	-	-
Subsurface Soil	5	10	VOC, SVOC	-	-	-	-	-
Total Soil Samples	-	**13**	-	**1 MAX**	**1 MAX**	-	-	-
Surface Water	-	-	-	-	-	-	-	-
Primary Points	5	5	VOC,SVOC	-	-	-	-	-
Secondary Points	3	3	VOC,SVOC	-	-	-	-	-
Primary Vertical Profile	2	6	VOC, SVOC	-	-	-	-	-
Secondary Vertical Profile	-	-	VOC, SVOC	-	-	-	-	-
Existing MW	2	2	VOC, SVOC	-	-	-	-	-
Total Water Samples	-	**7 MIN/ 16 MAX**	-	**1 MAX**	**1 MAX**	-	-	-

Notes: VOCs = Volatile Organic Compounds
PCB = Polychlorinated Biphenyl
MW = Monitoring well
Min = Minimum
PPMs = Priority Pollutant Metals
SVOCs = Semi volatile organic compounds
TPH = Total Petroleum Hydrocarbon
Max = Maximum

Four soil locations will also be sampled for soil quality parameters including nitrate, nitrite, ammonia, and phosphorus (total and reactive). Soil gas measurements of oxygen and carbon dioxide will be collected at these locations. Four groundwater locations will be sampled for water quality parameters including nitrate, nitrite, ammonia, phosphorus (total and reactive), dissolved oxygen, and carbon dioxide.

6.3.4 IRP Site No. 3 - Hush House Area

IRP Site No. 3 is located on the southeast corner of the intersection of O'Conner Way and Carey Street. There are two areas of concern associated with IRP Site No. 3. One of the areas is southwest of the former Hush House (Figure 6.6), where a former oil/water separator associated with the Hush House was located and is designated as Area B. The second area is northeast of the former Hush House where construction in 1994 discovered potential soil and groundwater contamination; the area is designated as Area C. Soil contamination was noted to occur at depths up to 8 ft bgs and was in contact with the groundwater. The water table was encountered at approximately 6 to 7 ft bgs. Subsection 3.2.3 provides additional information regarding the SI

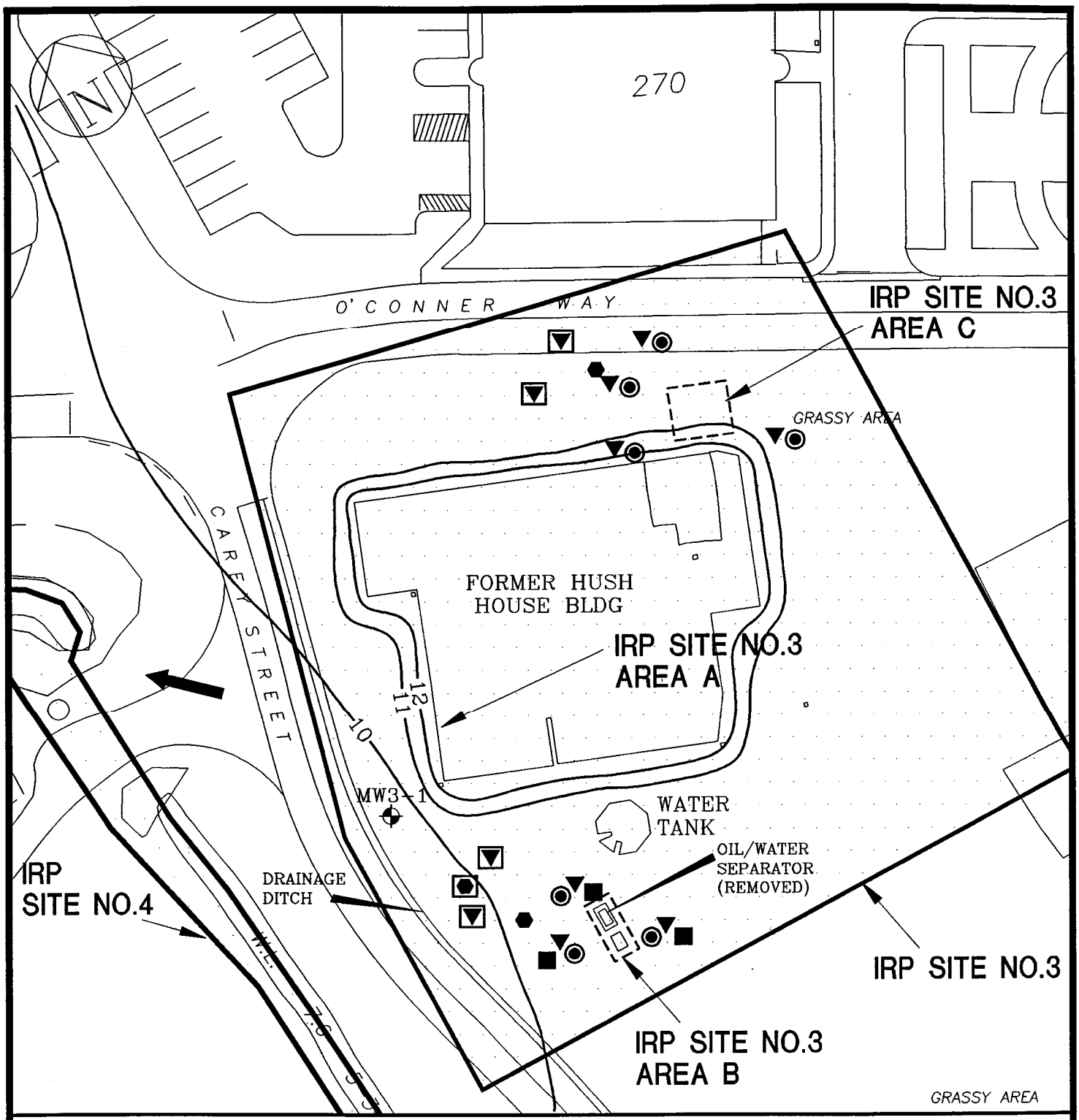

FIGURE 6.6

PL_FIG\ST_3-4

IRP SITE NO.3: PROPOSED RI SOIL AND GROUNDWATER SAMPLING LOCATIONS
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and past construction activities. Both soil and groundwater will be investigated at both areas of concern in the RI. The proposed scope of work to be conducted under this WP is provided below.

The primary phase will consist of up to seven points in an initial attempt to delineate the extent of soil and groundwater contamination. Three of the points will be located in the area of the oil/water separator and four points will be placed in the area northeast of the former Hush House.

Two soil samples per primary point will collected and submitted to the on-site laboratory for analyses. One sample will be collected from the surface to approximately five feet bgs and will be selected based on the highest PID reading, and one sample will be collected from the interval immediately above the water table. One groundwater sample per point will be collected from just below the top of the water table for on-site laboratory analyses. To support the risk screening assessment, three surface soil samples will be collected from the site at intervals of 0 to 6 inches.

The analytical results will be compared to the established PAGs. If contamination is identified above a PAG then up to four secondary points and two primary vertical profile points will be completed. The analyses to be conducted on the secondary points will be for the compounds detected in the primary phase only. Currently, two secondary points and one primary vertical points are designated for the southwest area and two secondary points and one primary vertical point are designated for the northeast area. However, it is possible that based on field results that some of the points designated for one area may not be needed and may be moved to the other areas where needed. This decision will be made in the field with the concurrence of HAZWRAP and the HQ ANG/CEVR.

One groundwater sample will be collected from each of the points terminated at the water tables. Up to three samples will be collected from the vertical profile points. The existing monitoring well at the site, MW3-1, will also be purged and sampled. All samples will be analyzed in the field laboratory for VOCs and SVOCs. A selected number of samples (approximately 5%) will be analyzed by the fixed-base laboratory. Additionally, all soil samples will be analyzed at the fixed-base laboratory for PPM and TPH. All groundwater samples will be analyzed at the fixe-base laboratory for PPM (filtered and unfiltered) . IRP Site No.3 sampling program is presented in Table 6.4.

Four soil locations will also be sampled for soil quality parameters including nitrate, nitrite, ammonia, and phosphorus (total and reactive). Soil gas measurements of oxygen and carbon dioxide will be collected at these locations. Four groundwater locations will be sampled for water

Table 6.4
IRP Site No. 3 Sampling Program
Oregon Air National Guard, Portland, Oregon

Site No. 3	Number of Locations	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM*	PCB	TPH
Sediment	-	-	-	-	-	-	-	-
Surface Soil	3	3	VOC, SVOC	-	-	3	-	3
Subsurface Soil	7	14	VOC, SVOC	-	-	14	-	14
Total Soil Samples	-	**17**	-	**1MAX**	**1MAX**	**17**	-	**17**
Surface Water	-	-	-	-	-	-	-	-
Primary Points	7	7	VOC,SVOC	1	1	14	-	
Secondary Points	4	4	VOC,SVOC	-	-	8	-	-
Primary Vertical Profile	2	6	VOC, SVOC	-	-	12	-	-
Secondary Vertical Points	1	3	VOC, SVOC	-	-	6	-	-
Existing MW	1	1	VOC, SVOC	-	-	2	-	-
Total Water Samples	-	**8 MIN/ 21 MAX**	-	**2 MAX**	**2 MAX**	**16 MIN/42 MAX**	-	-

Notes: VOCs = Volatile Organic Compounds
PCB = Polychlorinated Biphenyl
TPH = Total Petroleum Hydrocarbon
Max = Maximum
PPMs = Priority Pollutant Metals
SVOCs = Semi volatile organic compounds
Min = Minimum
*PPM will include filtered & unfiltered groundwater samples.

quality parameters including nitrate, nitrite, ammonia, phosphorus (total and reactive), dissolved oxygen, and carbon dioxide.

6.3.5 IRP Site No. 4 - Main Drainage Ditch

IRP Site No. 4 is located in the west central portion of the Base, extending from an area near the parking lot of Bldg. 455 to a point on the northwest Base boundary (Figure 6.7). The Main Drainage Ditch collects overland flow and storm water from the majority of the Base. Fuel spills have occurred in the past that may have reached the ditch. An oil sheen has been observed on surface waters in the ditch as recently as April 1993. During previous investigations, sediment sampling along the ditch showed low concentrations of TPH (< 25 mg/kg) and detection of five metals in sediment samples. No surface water samples have been collected. Based on results from the SI, sediment and surface water sampling are recommended at IRP Site No. 4. See Subsection 3.2.4 for additional information. To characterize the extent and nature of contaminants in the sediments, up to seven sediment samples will be collected. Also, seven surface water samples will be collected, if present, along the length of the ditch.

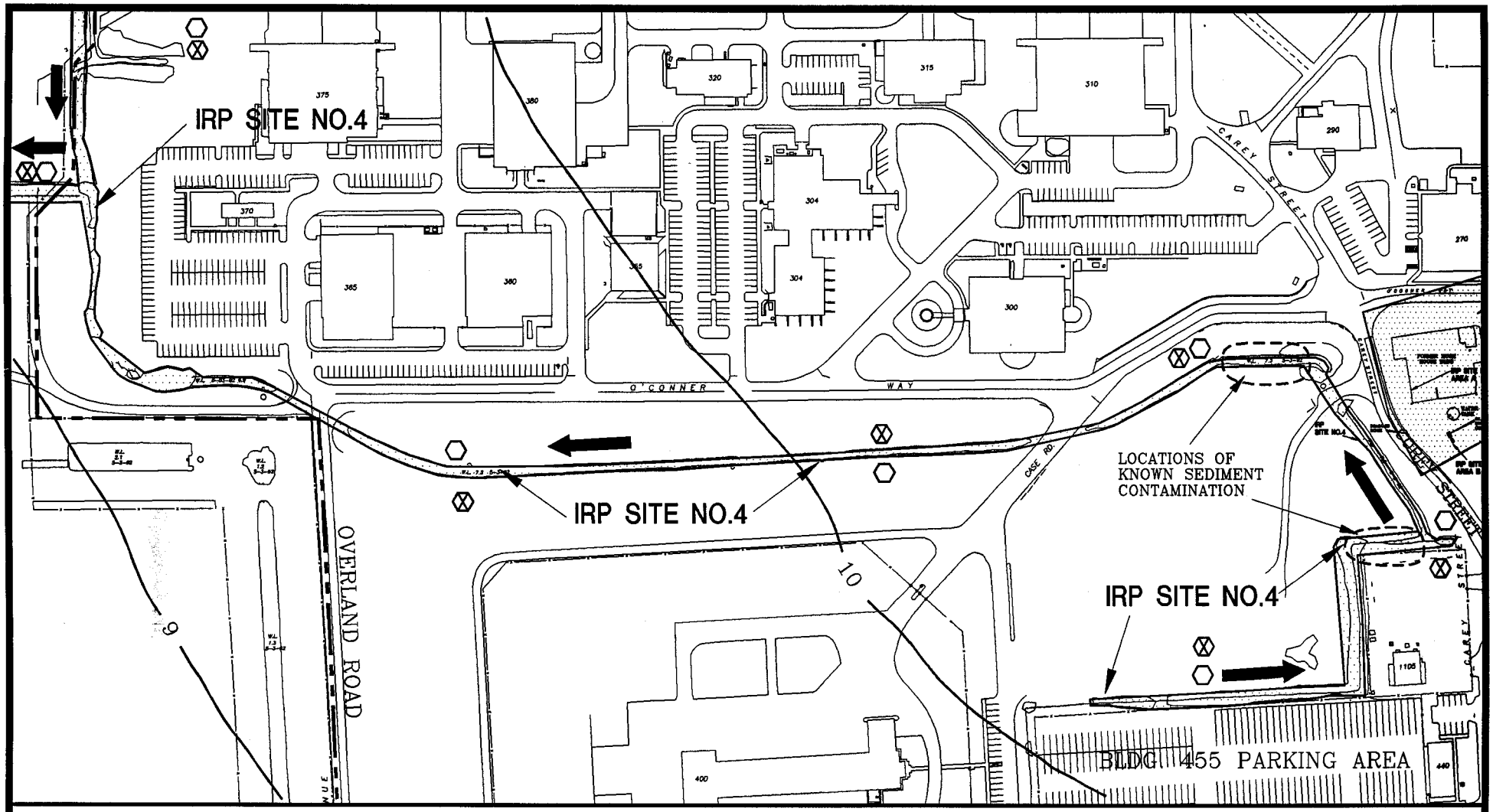

FIGURE 6.7

PL_FIG\ST_3-4

IRP SITE NO.4: PROPOSED RI SEDIMENT AND SURFACE WATER SAMPLING LOCATIONS

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All sediment and surface water samples will be analyzed by the field laboratory for VOCs and SVOCs. A selected number of samples (approximately 5%) may be analyzed by the fixed-base laboratory according to the QAPP. All sediment samples will also be analyzed at the fixed-base laboratory for PPMs, PCBs, and TPH. All surface water samples will also be analyzed at the fixed-base laboratory for PPMs (unfiltered) and PCBs. IRP Site No. 4 sediment and surface water sampling program is presented in Table 6.5.

Table 6.5
IRP Site No. 4 Sampling Program
Oregon Air National Guard, Portland, Oregon

Site No. 4	Number of Locations	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM	PCB	TPH
Sediment	7	7	VOC, SVOC	-	-	7	7	7
Total Soil Samples	-	7	-	1 MAX	1 MAX	7	7	7
Surface Water	7	7	VOC,SVOC	-	-	7	7	-
Total Water Samples	-	7	-	1 MAX	1 MAX	7*	7	-

Notes:
VOC = Volatile Organic Compounds
PCB = Polyclorinated Biphenyl
MW = Monitoring Wells
Min = Minimum
* Metals analysis will be for unfiltered Metals only

PPMs = Priority Pollutant Metals
SVOCs = Semi volatile organic compounds
TPH = Total Petroleum Hydrocarbon
Max = Maximum

Four sediment samples will also be sampled for soil quality parameters including nitrate, nitrite, ammonia, and phosphorus (total and reactive).

6.3.6 IRP Site No. 5 - AGE Maintenance Shop

IRP Site No. 5 is the AGE Maintenance Shop located at Bldg 160 (Figure 6.8) near the intersection of O'Conner Way and Carl Street. The site is split into three areas: IRP Site No. 5 Area A, the North Fence Area; IRP Site No. 5 Area B, the Former UST Area; and IRP Site No. 5 Area C, the South Fence Area. Wastes generated by the AGE Maintenance Shop include spent battery acid, solvents, lubricants, antifreeze, cleaning solutions, and automotive fluids. These wastes were possibly disposed along the North and South Fence Areas (IRP Sites No. 5 Area A and Area C).

IRP Site No. 5 Area A was investigated during the SI. The results indicated slightly elevated concentrations of cadmium, lead, and zinc in soils compared to background. Trichoroethene (6

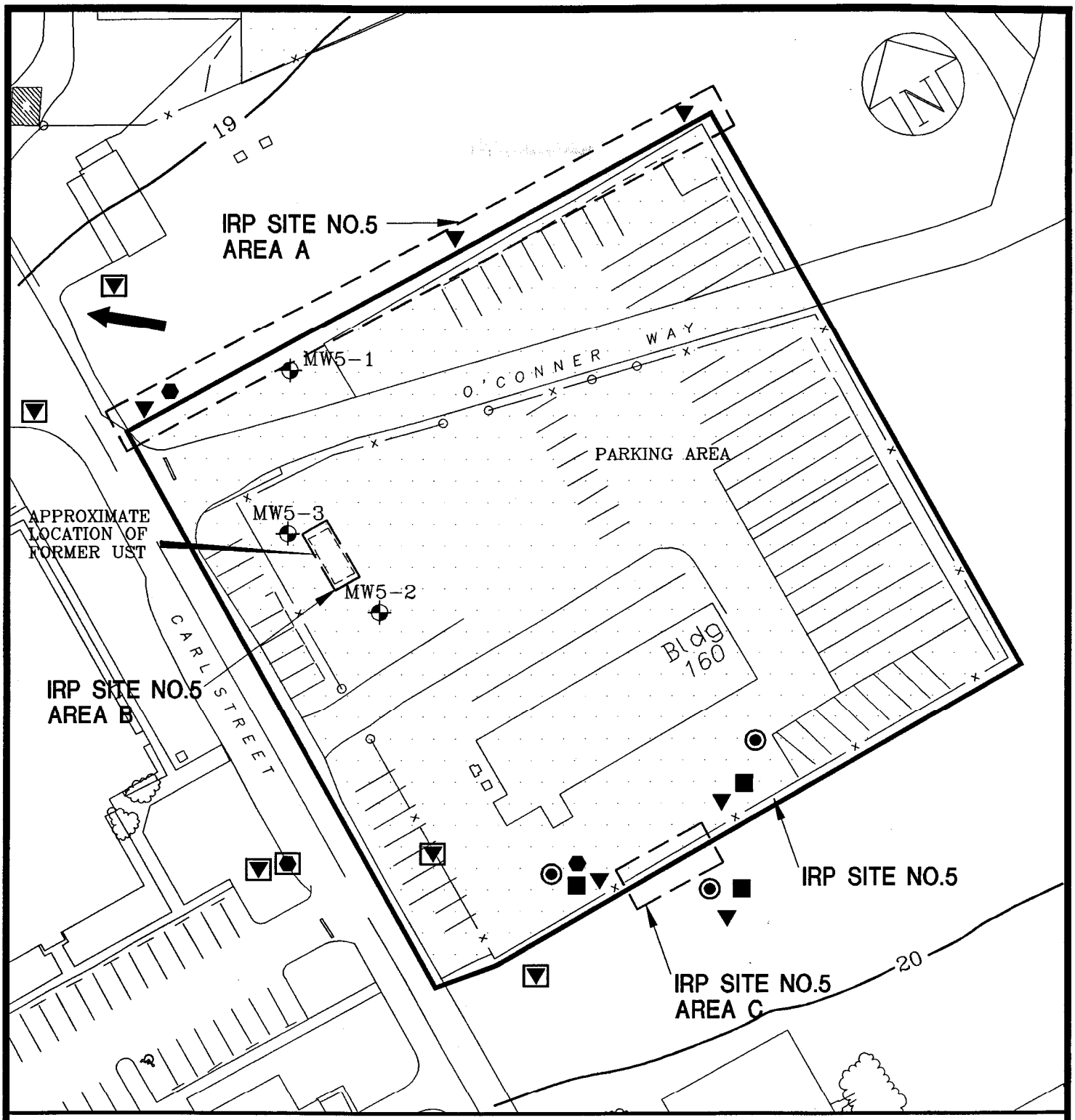

FIGURE 6.8

PL_FIG\ST_6-7

IRP SITE NO.5: PROPOSED RI SOIL AND GROUNDWATER SAMPLING LOCATIONS
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μg/L) and sulfate (42 milligrams/liter (mg/L)) were detected in groundwater from MW5-1. Based on the SI findings and the preliminary risk characterization, the SI recommended that only the groundwater be further investigated in the site area.

IRP Site No. 5 Area B was investigated and remediated as part of the HQ ANG/CEVR's Rapid Response Program and will not be addressed under the RI.

IRP Site No. 5 Area C was not investigated during the SI. During a site visit in 1993, stressed vegetation was noted along the fence. The RI will address soil and groundwater in this site area.

The water table occurs at a depth of approximately 5 to 7 ft bgs (SAIC, 1991). See Subsection 3.2.5 for additional information regarding the SI results.

The primary phase will consist of up to six points in an initial attempt to delineate the extent of soil (5C only) and groundwater contamination. Three of the points will be located in the 5C area and three points will be placed in the 5A area. Two soil samples per primary point (5C only) will be collected and submitted to the on-site laboratory for analyses. One sample will be collected from the surface to approximately five feet bgs and will be selected based on the highest PID reading, and one sample will be collected from the interval immediately above the water table. One groundwater sample per point, both 5A and 5C areas, will be collected from just below the top of the water table for on-site laboratory analyses. To support the risk screening assessment, three surface soil samples will be collected from the site at intervals of 0 to 6 inches (5C only).

The analytical results will be compared to the established project action goals. If contamination is identified above an action goal, up to five secondary points and two primary vertical profile points will then be performed. Currently, two secondary points and one primary vertical point are designated for the 5A area while three secondary points and one primary vertical point are designated for the 5C area. However, it is possible that, based on field results, some of the points designated for one area may not be needed and may be moved to other areas where needed. This decision will be made in the field with the concurrence of HAZWRAP and the HQ ANG/CEVR.

Depending on the results of the previous phases, an additional secondary vertical profile point for the 5C area may be installed. One groundwater sample will be collected from each of the points terminated at the water table. Up to three samples will be collected from the vertical profile points. Existing monitoring well MW5-1 will also be purged and sampled. All samples will be

analyzed in the field laboratory for VOCs and SVOCs. A selected number of samples (approximately 5%) will be analyzed by the fixed-base laboratory. All samples collected from Site 5 Area C will be analyzed at the fixed-base laboratory for PPMs. Both filtered and unfiltered groundwater samples will be collected for PPM analyses. IRP Site No. 5 sampling program is presented in Table 6.6.

Table 6.6
IRP Site No. 5 Sampling Program
Oregon Air National Guard, Portland, Oregon

Site No. 5	Number of Location	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM*	PCB	TPH
Surface Soil	3	3	VOC, SVOC	-	-	3	-	-
Subsurface Soil	3	6	VOC, SVOC	-	-	6	-	-
Total Soil Samples	-	9	-	1 MAX	1 MAX	9	-	-
Surface Water	-	-	-	-	-	-	-	-
Primary Points	6	6	VOC,SVOC	-	-	6	-	-
Secondary Points	5	5	VOC,SVOC	-	-	6	-	-
Primary Vertical Profile	2	6	VOC, SVOC	-	-	6	-	-
Secondary Vertical Profile	1	3	VOC, SVOC	-	-	6	-	-
				-	-	-	-	-
Existing MW	1	1	VOC, SVOC	-	-	-	-	-
Total Water Samples	-	7 MIN/ 21 MAX	-	2 MAX	2 MAX	6 MIN/ 24 MAX	-	-

Notes:
VOCs = Volatile Organic Compounds
PCB = Polychlorinated Biphenyl
MW = Monitoring Well
Min = Minimum
PPM = Priority Pollutant Metals
SVOCs = Semi volatile organic compounds
TPH = Total Petroleum Hydrocarbon
Max = Maximum
*PPM analyses will be conducted on samples collected from Site 5 Area C and will include filtered & unfiltered groundwater samples.

Four soil locations will also be sampled for soil quality parameters including nitrate, nitrite, ammonia, and phosphorus (total and reactive). Soil gas measurements of oxygen and carbon dioxide will be collected at these locations. Four groundwater locations will be sampled for water quality parameters including nitrate, nitrite, ammonia, phosphorus (total and reactive), dissolved oxygen, and carbon dioxide.

6.3.7 IRP Site No. 7 - Burn Pit Area

IRP Site No. 7 is located outside the eastern Base boundary, east of Bldg. 210 (Figure 6.9). The Burn Pit was used for fire training exercises between 1957 and 1978. It was estimated (SAIC, 1991) that several thousand gallons of waste oils, jet fuel (JP-4), solvents, and flammable liquids were burned in the pit each year. The soil gas survey conducted during the SI indicated the potential for contamination at the site, including fuel components and solvents. However, the soil and groundwater samples collected during the SI indicated very low levels of contamination.

Based on the results of the SI, the RI will concentrate on a limited number of soil and groundwater points. The site area is now covered with gravel. The water table was encountered at a depth of approximately 9 to 15 ft bgs (SAIC, 1991). See Subsection 3.2.6 for additional information. The proposed scope of work to be conducted under this WP is provided below.

The primary phase will consist of up to two points. Two soil samples per primary point will collected and submitted to the on-site laboratory for analyses. One sample will be collected from the surface to approximately five ft bgs and will be selected based on the highest PID reading, and one sample will be collected from the interval immediately above the water table. One groundwater sample per point will be collected from just below the top of the water table for on-site laboratory analyses. To support the risk screening assessment, two surface soil samples will be collected from the site at intervals of 0 to 6 inches.

The analytical results will be compared to the established project action goals. If contamination is identified above an action goal, up to two secondary points will then be performed to delineate the plume. The analyses to be conducted on the secondary points will be for the compounds detected in the primary phase only. No vertical profile points are proposed for this site.

One groundwater sample will be collected from the primary and secondary points associated with this site. The existing monitoring wells at the site, MW7-1, MW7-2 and MW7-3 will also be purged and sampled.

All samples will be analyzed in the on-site laboratory for VOCs and SVOCs. A selected number of samples (approximately 5%) will be analyzed by the fixed-base laboratory. IRP Site No. 7 sampling program is presented in Table 6.7.

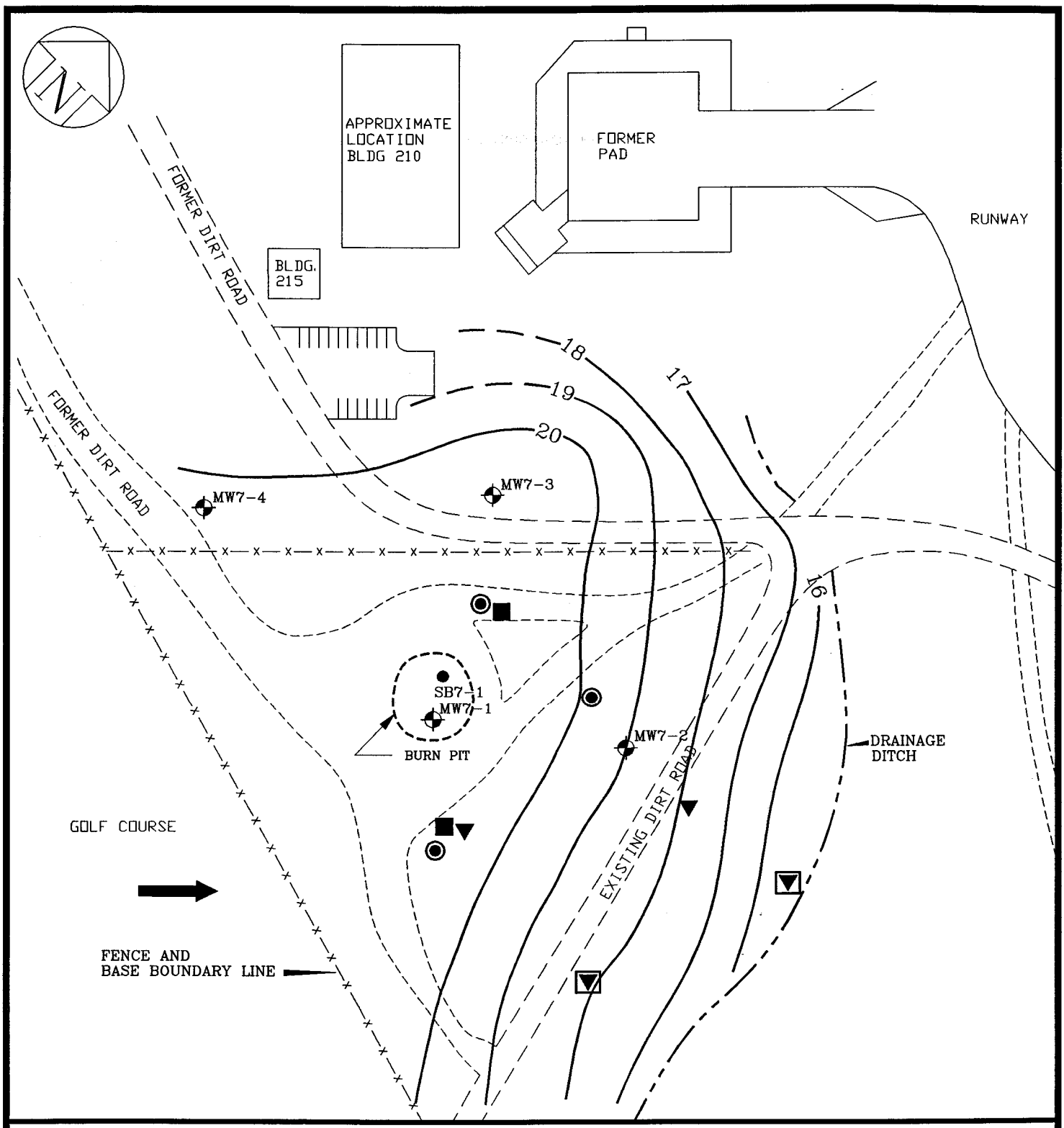

FIGURE 6.9

PL_FIG\SITE-7

IRP SITE NO.7: PROPOSED RI SOIL AND GROUNDWATER SAMPLING LOCATIONS
142nd FG, Oregon ANG
Portland International Airport
Portland, Oregon

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Table 6.7
IRP Site No. 7 Sampling Program
Oregon Air National Guard, Portland, Oregon

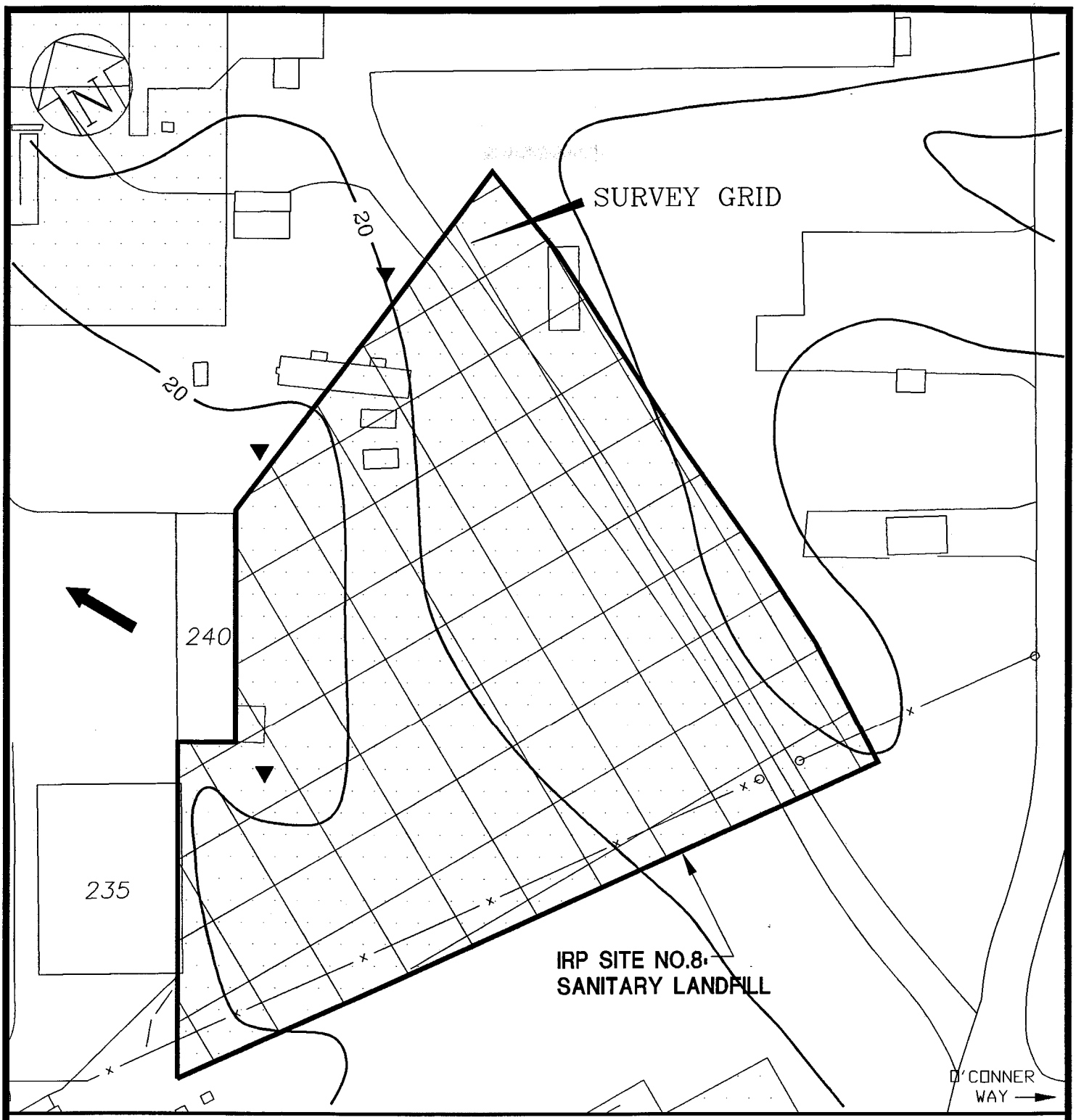
Site No. 7	Number of Locations	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM	PCB	TPH
Sediment	-	-	-	-	-	-	-	-
Surface Soil	2	2	VOC, SVOC	-	-	-	-	-
Subsurface Soil	3	6	VOC, SVOC	-	-	-	-	-
Total Soil Samples	-	**8**	-	**1 MAX**	**1 MAX**	-	-	-
Surface Water	-	-	-	-	-	-	-	-
Primary Points	2	2	VOC,SVOC	-	-	-	-	-
Secondary Points	2	2	VOC, SVOC	-	-	-	-	-
Vertical Profile Points	-	-	-	-	-	-	-	-
Secondary Profile Points	-	-	-	-	-	-	-	-
Existing MW	3	3	VOC, SVOC	-	-	-	-	-
Total Water Samples	-	**5 MIN/ 7 MAX**	-	**1 MAX**	**1 MAX**	-	-	-

Notes: VOCs = Volatile Organic Compounds
PCB = Polychlorinated Biphenyl
MW = Monitoring Well
Min = Minimum
PPM = Priority Pollutant Metals
SVOCs = Semi volatile organic compounds
TPH = Total Petroleum Hydrocarbon
Max = Maximum

Four soil locations will also be sampled for soil quality parameters including nitrate, nitrite, ammonia, and phosphorus (total and reactive). Soil gas measurements of oxygen and carbon dioxide will be collected at these locations. Four groundwater locations will be sampled for water quality parameters including nitrate, nitrite, ammonia, phosphorus (total and reactive), dissolved oxygen, and carbon dioxide.

6.3.8 IRP Site No. 8 - Sanitary Landfill

The location of IRP Site No. 8 is thought to be immediately east of Bldgs 235 and 240 (Figure 6.10). The original site area was estimated to be one acre in size and was reported to have received building and shop refuse, paint cans, oil residues, batteries, and waste paper. The landfill was estimated to be in operation from 1949 to 1956. During previous investigations, aerial photographs were reviewed and geophysical surveys and trenching were conducted to identify the location of the landfill and waste materials. No evidence of the landfill was discovered by the intrusive activities. The RI recommended conducting additional geophysical surveys and limited sampling of the groundwater. The water table is estimated to occur at a depth



LEGEND

APPROXIMATE GROUNDWATER FLOW DIRECTION

PROPOSED GROUNDWATER GRAB SAMPLE

20 TOPOGRAPHIC CONTOUR (IN FEET)

0 50

SCALE IN FEET

FIGURE 6.10

IRP SITE NO.8: PROPOSED RI GROUNDWATER SAMPLING LOCATIONS AND GEOPHYSICAL SURVEY GRID
142nd FG, Oregon ANG
Portland International Airport
Portland, Oregon

PL_FIG\ST_8-9

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of approximately 6 to 9 ft bgs. See Subsection 3.2.7 for additional information. To locate the former sanitary landfill and the areas to be investigated, all available historical photographs will be acquired and reviewed. Photographs will be acquired from the Base, U.S. Army Corp of Engineers, U.S. Geological Survey, and private companies. The photographs will be used to identify the disturbed areas indicative of landfill activities at the site area. These disturbed areas will be then be marked in the field to conduct the geophysical surveys.

Three types of geophysical surveys are proposed to be performed at the site. Geophysical surveys will include a magnetometer survey (MAG), an electromagnetic survey (EMS), and a ground penetrating radar survey (GPR). The MAG survey will identify the buried metallic materials while the EMS will measure the differences between conductivities of the buried solid waste and the surrounding soils. The GPR survey will identify the natural subsurface features and contacts between the disturbed and undisturbed materials in the ground.

The geophysical surveys will be performed on a 30 ft by 30 ft grid and are expected to cover an area approximately 250 ft by 350 ft. The MAG and the GPR survey measurements will be collected along the grid lines, and the EMS measurements will be collected at the grid nodes. After the geophysical data has been interpreted and reviewed, anomalies suspected of being representative of the landfill will be marked in the field.

At the completion of the geophysical activities at the site and if the landfill can be identified, three primary points will be conducted downgradient of the site. The points will be located beyond the landfill boundaries as defined by the geophysical survey. One groundwater sample from each point will be collected. The sample will be collected from just below the water table. All groundwater samples will be analyzed by the field laboratory for VOCs and SVOCs. A selected number of samples (approximately 5%) may be analyzed by the fixed-base laboratory according to the QAPP. All groundwater samples will also be analyzed at the fixed-base laboratory for PPMs (filtered and unfiltered) and PCBs. IRP Site No. 8 groundwater sampling program is presented in Table 6.8.

If groundwater sampling is conducted three groundwater locations will be sampled for water quality parameters including nitrate, nitrite, ammonia, phosphorus (total and reactive), dissolved oxygen, and carbon dioxide.

Table 6.8
IRP Site No. 8 Sampling Program
Oregon Air National Guard, Portland, Oregon

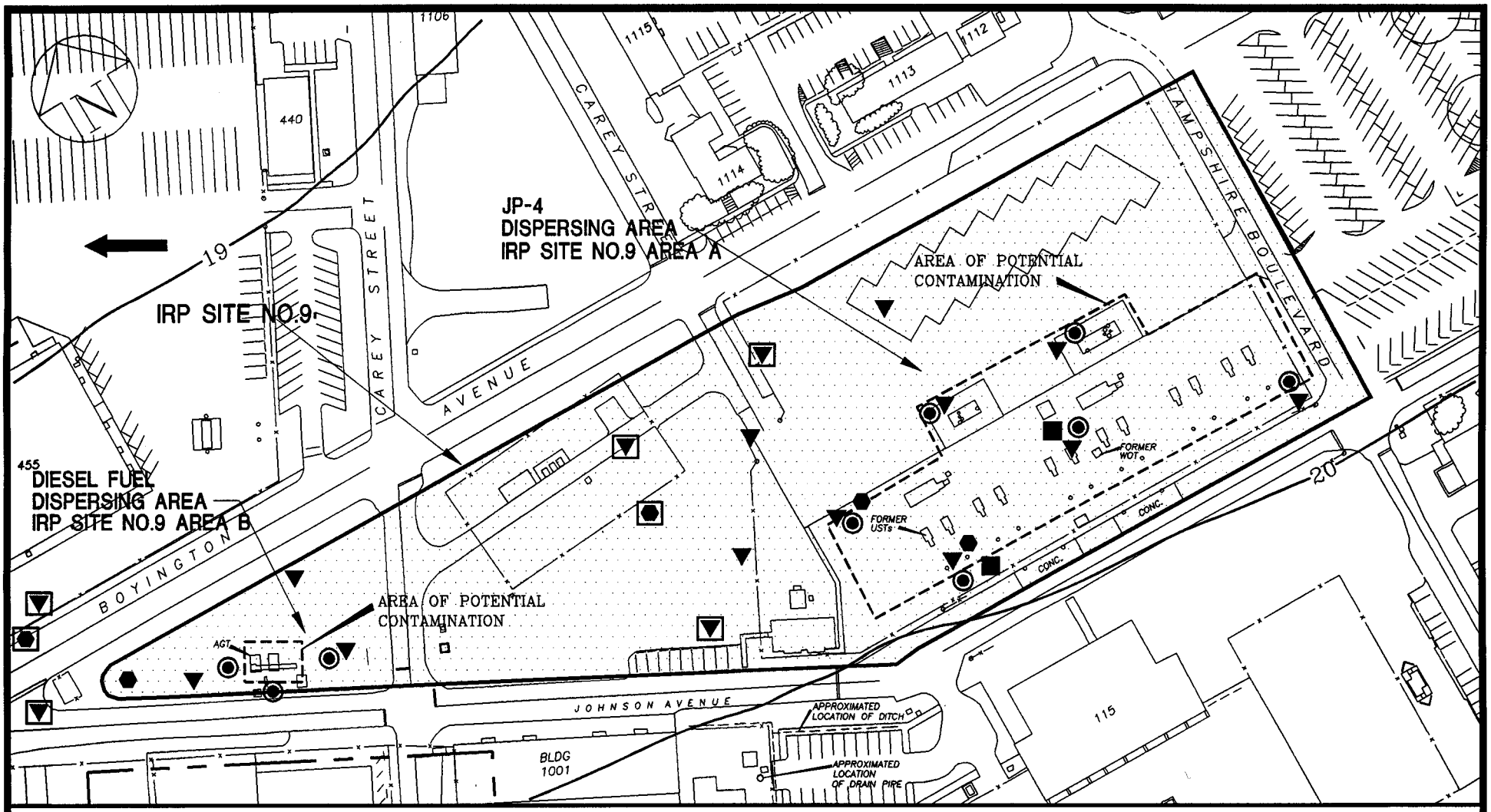
Site No. 8	Number of Locations	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM*	PCB	TPH
Sediment	-	-	-	-	-	-	-	-
Surface Soil	-	-	-	-	-	-	-	-
Subsurface Soil	-	-	-	-	-	-	-	-
Total Soil Samples	-	-	-	-	-	-	-	-
Surface Water	-	-	-	-	-	-	-	-
Primary Points	3	3	VOC,SVOC	-	-	6	3	-
Secondary Points	-	-	-	-	-	-	-	-
Primary Vertical Points	-	-	-	-	-	-	-	-
Secondary Vertical Points	-	-	-	-	-	-	-	-
Existing MW	-	-	-	-	-	-	-	-
Total Water Samples	-	3	-	1 MAX	1 MAX	6	3	-

Notes: VOCs = Volatile Organic Compounds
PCB = Polychlorinated Biphenyl
TPH = Total Petroleum Hydrocarbon
Max = Maximum
PPMs = Priority Pollutant Metals
SVOCs = Semi volatile organic compounds
MW = Monitoring Well
*PPM will include filtered & unfiltered samples.

6.3.9 IRP Site No. 9 - Petroleum, Oil and, and Lubricants (POL) Facility

IRP Site No. 9 consists of two separate source areas: IRP Site No. 9 Area A which contained the former POL facility, a former JP-4 dispensing area on the east side, and a diesel dispensing area on the west side, and Site No. 9 Area B, the former diesel fuel dispensing area (Figure 6.11). IRP Site No. 9 Area A is bounded by Boyington Avenue on the north, Johnson Avenue on the south, and Hampshire Boulevard on the east. The site contained twelve 25,000-gal USTs and one smaller waste oil tank. Soil contamination was discovered at the site area during construction activities in 1991. Stained soils and free-product were observed in an excavation. When all the tanks were removed in March 1994, soil samples collected from the tank excavation pits showed that VOCs, SVOCs, and TPH were present. Benzene was detected at 1,920 μg/L in one water sample taken from an excavation pit. Based on these findings, the site area was recommended for further investigation.

IRP Site No. 9 Area B is adjacent to and immediately west of IRP Site No. 9 Area A and is bounded by Boyington Ave. on the north, Johnson Ave. on the south, and Carey Street on the



LEGEND

- ANG BOUNDARY
- GROUNDWATER FLOW DIRECTION
- FENCE LINE
- 20 TOPOGRAPHIC CONTOUR (IN FEET)
- AREA OF POTENTIAL CONTAMINATION
- PROPOSED SOIL SAMPLE LOCATION
- PROPOSED SURFACE SOIL SAMPLE
- SECONDARY PROPOSED GROUNDWATER VERTICAL PROFILE
- PROPOSED GROUNDWATER VERTICAL PROFILE
- PROPOSED GROUNDWATER GRAB SAMPLE
- SECONDARY PROPOSED GROUNDWATER SAMPLE

0 125
SCALE IN FEET

FIGURE 6.11

PL_FIG\ST_8-9

IRP SITE NO.9: PROPOSED RI SOIL AND GROUNDWATER SAMPLING LOCATIONS

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east. The site contained the former diesel fuel dispensing area and had two aboveground tanks on the south side of the site area. Soil staining was reported and may be the result of past spills during fuel transfers. No previous investigation of this site area has occurred. Based on these findings, the site area was recommended for further investigation. The water table is estimated to occur at a depth of approximately 10 to 15 ft bgs. See Subsection 3.2.8 for additional information.

The primary phase will consist of up to twelve points in an initial attempt to delineate the extent of soil and groundwater contamination. Nine of the points will be located in Area 9A and three points will be placed in Area 9B. Two soil samples per primary point will be collected and submitted to the on-site laboratory for analyses. One sample will be collected from the surface to approximately five feet bgs and will be selected based on the highest PID reading, and one sample will be collected from the interval immediately above the water table. One groundwater sample per point will be collected from just below the top of the water table for on-site laboratory analyses. To support the risk screening assessment, two surface soil samples will be collected from the site at intervals of 0 to 6 inches.

The analytical results will be compared to the established project action goals. If contamination is identified above an action goal, up to five secondary points and three primary vertical profile points will then be emplaced. The analyses to be conducted on the samples collected from the secondary points will be for the compounds detected during the primary phase only. Currently, three secondary points and two primary vertical points are designated for the 9A area while two secondary points and one primary vertical point are designated for the 9B area. However, it is possible that based on field results some of the points designated for one area may not be needed and may be moved to other areas where needed. This decision will be made in the field with the concurrence of HAZWRAP and the HQ ANG/CEVR.

Depending on the results of the previous phases, two secondary vertical profile points, for the 9A and 9B areas may be available.

One groundwater sample will be collected from each of the points terminated at the water table. Up to three samples will be collected from the vertical profile points. All samples will be analyzed in the field laboratory for VOCs and SVOCs. A selected number of samples (approximately 5%) will be analyzed by the fixed-base laboratory. All soil samples from Site 9 will also be analyzed at the fixed-base laboratory for TPH. IRP Site No. 9 sampling program is presented in Table 6.9.

Table 6.9
IRP Site No. 9 Sampling Program
Oregon Air National Guard, Portland, Oregon

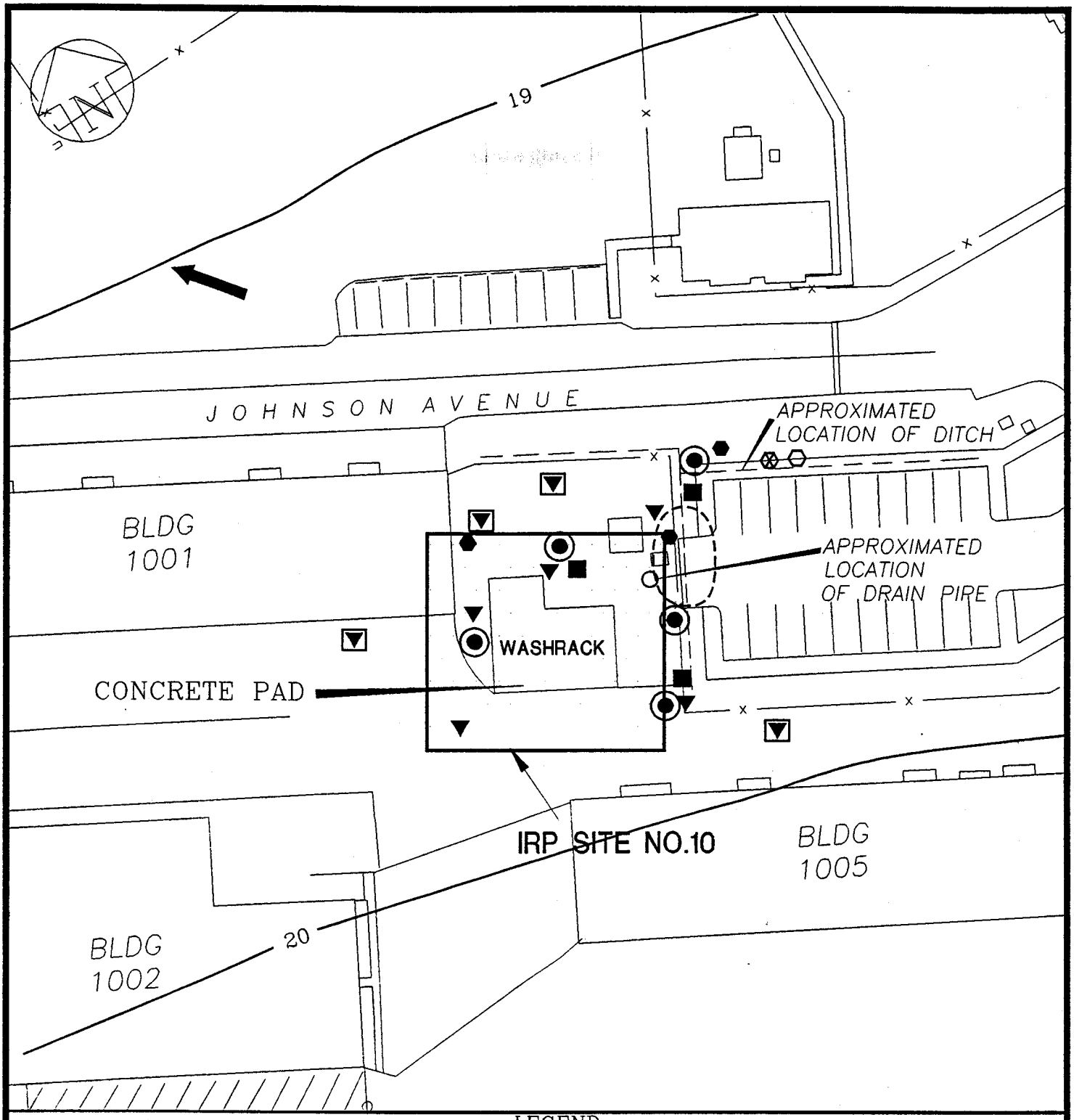
Site No. 9	Number of Locations	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM	PCB	TPH
Sediment	-	-	-	-	-	-	-	-
Surface Soil	2	2	VOC, SVOC	-	-	-	-	2
Subsurface Soil	12	24	VOC, SVOC	-	-	-	-	24
Total Soil Samples	-	**26**	-	**2 MAX**	**2 MAX**	-	-	**26**
Surface Water	-	-	-	-	-	-	-	-
Primary Points	12	12	VOC,SVOC	-	-	-	-	-
Secondary Points	5	5	VOC,SVOC	-	-	-	-	-
Primary Vertical Profile	3	9	VOC SVOC	-	-	-	-	-
Secondary Vertical Profile	2	6	VOC SVOC	-	-	-	-	-
				-	-	-	-	-
Existing MW	-	-	-	-	-	-	-	-
Total Water Samples	-	**12 MIN/ 32 MAX**	-	**2 MAX**	**2 MAX**	-	-	-

Notes: VOCs = Volatile Organic Compounds
PCB = Polychlorinated Biphenyl
MW = Monitoring Well
Min = Minimum
PPMs = Priority Pollutant Metals
SVOCs = Semi volatile organic compounds
TPH = Total Petroleum Hydrocarbon
Max = Maximum

Four soil locations will also be sampled for soil quality parameters including nitrate, nitrite, ammonia, and phosphorus (total and reactive). Soil gas measurements of oxygen and carbon dioxide will be collected at these locations. Four groundwater locations will be sampled for water quality parameters including nitrate, nitrite, ammonia, phosphorus (total and reactive), dissolved oxygen, and carbon dioxide.

6.3.10 IRP Site No. 10 - Equipment Washrack

IRP Site No. 10 is located at the southeast corner of Bldg 1001 and consists of a 30 ft by 30 ft concrete pad and a drain pipe (Figure 6.12). The concrete pad slopes toward the east to the drain pipe. Effluent from the washrack flows into the drain pipe which empties into a drainage ditch to the northeast of the site area. Information concerning the nature and amount of effluent is unavailable. No formal investigation of IRP Site No. 10 has occurred; however, soil sampling



LEGEND

- 20 — TOPOGRAPHIC CONTOUR (IN FEET)
- —x—x— FENCE LINE
- GROUNDWATER FLOW DIRECTION
- IRP SITE BOUNDARY
- PROPOSED GROUNDWATER GRAB SAMPLE
- SECONDARY PROPOSED GROUNDWATER GRAB SAMPLE
- AREA OF KNOWN SOIL CONTAMINATION
- PROPOSED SURFACE WATER SAMPLE
- PROPOSED SEDIMENT SAMPLE
- PROPOSED GROUNDWATER VERTICAL PROFILE
- PROPOSED SOIL SAMPLE LOCATION
- PROPOSED SURFACE SOIL SAMPLE

0 50

SCALE IN FEET

FIGURE 6.12

PL_FIG\ST_10-11

IRP SITE NO.10: PROPOSED RI SOIL AND GROUNDWATER SAMPLING LOCATIONS
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Portland, Oregon

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was conducted by the Base in 1991 which indicated the presence of oil and grease (7,400 mg/kg) and lead (400 mg/kg) in the site soils. IRP Site No. 10 is recommended for further investigation. The water table is estimated to occur at a depth of approximately 5 to 7 ft bgs. A detailed description of the site background and the sampling results is provided in Subsection 3.2.9 of this document.

The primary phase will consist of up to five points in an initial attempt to delineate the extent of soil and groundwater contamination. Two soil samples per primary point will be collected and submitted to the on-site laboratory for analyses. One sample will be collected from the surface to approximately five feet bgs and will be selected based on the highest PID reading, and one sample will be collected from the interval immediately above the water table. One groundwater sample per point will be collected from just below the top of the water table for on-site laboratory analyses. To support the risk screening assessment, three surface soil samples will be collected from the site at intervals of 0 to 6 inches.

In addition, one surface water and one sediment sample will be collected from the ditch adjacent to the washrack. These samples will be to support the results of the sampling that Base personnel conducted in 1993.

The analytical results will be compared to the established project action goals. If contamination is identified above an action goal, up to four secondary points and three primary vertical profile points will then be emplaced. No secondary vertical profiles are currently proposed.

One groundwater sample will be collected from each of the points terminated at the water table. Up to three samples will be collected from the vertical profile points. All samples will be analyzed in the field laboratory for VOCs and SVOCs. A selected number of samples (approximately 5%) will be analyzed by the fixed-base laboratory for VOCs and SVOCs. All soil and sediment samples will be analyzed in the fixed-base laboratory for PPMs and TPH . All groundwater samples will be analyzed by the fixed-base laboratory for PPMs (filtered and unfiltered) and the surface water sample will be analyzed for PPMs (unfiltered only). IRP Site No. 10 sampling program is presented in Table 6.10.

Four soil locations will also be sampled for soil quality parameters including nitrate, nitrite, ammonia, and phosphorus (total and reactive). Soil gas measurements of oxygen and carbon dioxide will be collected at these locations. Four groundwater locations will be sampled for water

Table 6.10
IRP Site No. 10 Sampling Program
Oregon Air National Guard, Portland, Oregon

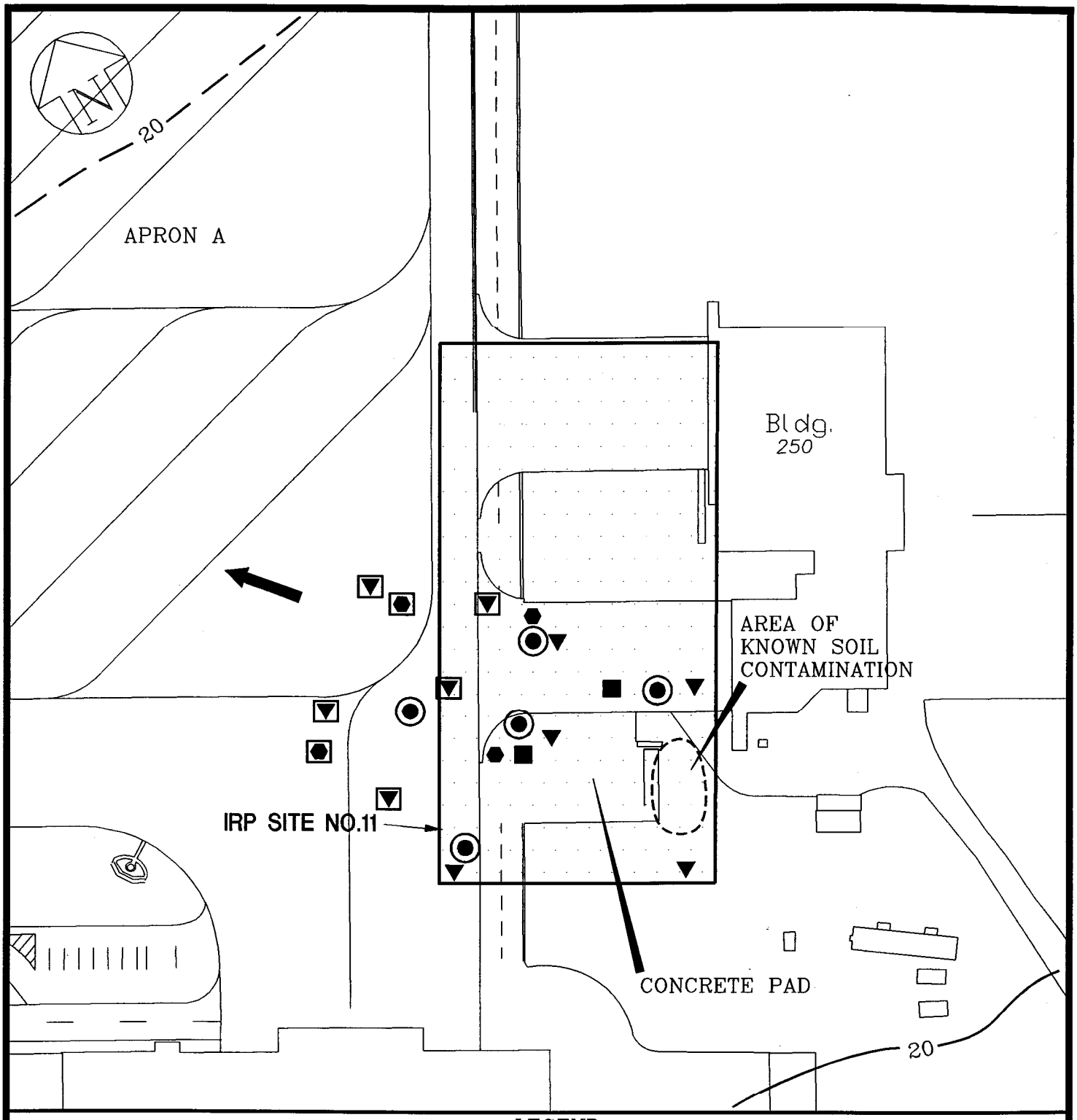
Site No. 10	Number of Locations	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM*	PCB	TPH
Sediment	1	1	-	-	-	1	-	1
Surface Soil	3	3	VOC SVOC	-	-	3	-	3
Subsurface Soil	5	10	VOC SVOC	-	-	10	-	10
Total Soil Samples	-	**14**	-	**1 MAX**	**1 MAX**	**14**	-	**14**
Surface Water	1	1	-	-	-	1**	-	-
Primary Points	5	5	VOC,SVOC	-		10	-	-
Secondary Points	4	4		-	-	8	-	-
Primary Vertical Profile	3	9	VOC,SVOC	-	-	18	-	-
Secondary Vertical Profile	-	-	-	-	-	-	-	-
Existing MW	-	-	-	-	-	-	-	-
Total Water Samples	-	**6 MIN/19 MAX**	-	**1 MAX**	**1 MAX**	**11 MIN/ 37 MAX**	-	-

Notes: VOCs = Volatile Organic Compounds
PCB = Polychlorinated Biphenyl
MW = Monitoring well
*PPM will include filtered and unfiltered groundwater samples.
PPMs = Priority Pollutant Metals
SVOCs = Semi volatile organic compounds
** PPM unfiltered sample
TPH = Total Petroleum Hydrocarbon

quality parameters including nitrate, nitrite, ammonia, phosphorus (total and reactive), dissolved oxygen, and carbon dioxide.

6.3.11 IRP Site No.11 - Washrack West of Building 250

IRP Site No. 11 is located at the southeast corner of Apron A and west of Building 250 (Figure 6.13). The washrack was used to wash planes and consists of a 80 ft by 80 ft concrete pad, a drain pipe, and an oil/water separator. Solvents and degreaser were used to remove undesirable materials from the plane body before applying a soap and water mixture. This site has not been formally investigated; however, one soil sample was collected by a person from the Base during utility installation at the site. A high concentration of TPH was detected (6,000 mg/kg) in the soil sample. IRP Site No. 11 is recommended for further investigation.



LEGEND

- 20 — TOPOGRAPHIC CONTOUR (IN FEET)
- —x—x— FENCE LINE
- GROUNDWATER FLOW DIRECTION
- PROPOSED GROUNDWATER GRAB SAMPLE
- SECONDARY PROPOSED GROUNDWATER GRAB SAMPLE
- AREA OF KNOWN SOIL CONTAMINATION
- PROPOSED GROUNDWATER VERTICAL PROFILE
- SECONDARY PROPOSED GROUNDWATER VERTICAL PROFILE
- PROPOSED SURFACE SOIL SAMPLE
- PROPOSED SOIL SAMPLE LOCATION

0 75

SCALE IN FEET

FIGURE 6.13

PL_FIG\ST_10-11

IRP SITE NO.11: PROPOSED RI SOIL AND GROUNDWATER SAMPLING LOCATIONS
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The water table is estimated to occur at a depth of approximately 5 to 7 ft bgs. A detailed description of the site background and the sampling results is provided in Subsection 3.2.10 of this document. The primary phase will consist of up to five points in an initial attempt to delineate the extent of soil and groundwater contamination. Two soil samples per primary point will be collected and submitted to the on-site laboratory for analyses. One sample will be collected from the surface to approximately five ft bgs and will be selected based on the highest PID reading, and one sample will be collected from the interval immediately above the water table. One groundwater sample per point will be collected from just below the top of the water table for on-site laboratory analyses. To support the risk screening assessment, two surface soil samples will be collected from the site at intervals of 0 to 6 inches.

The analytical results will be compared to the established project action goals. If contamination is identified above an action goal, up to five secondary points and two primary vertical profile points will then be performed. Depending on the results of the previous phases, two secondary vertical profile points may be available.

One groundwater sample will be collected from each of the points terminated at the water table. Up to three samples will be collected from the vertical profile points. All samples will be analyzed in the field laboratory for VOCs and SVOCs. A selected number of samples (approximately 5%) will be analyzed by the fixed-base laboratory for VOCs and SVOCs. All soil samples will be analyzed in the fixed-base laboratory for PPMs and TPH. All groundwater samples will be analyzed by the fixed-base laboratory for PPMs (filtered and unfiltered). IRP Site No. 11 sampling program is presented in Table 6.11.

Four soil locations will also be sampled for soil quality parameters including nitrate, nitrite, ammonia, and phosphorus (total and reactive). Soil gas measurements of oxygen and carbon dioxide will be collected at these locations. Four groundwater locations will be sampled for water quality parameters including nitrate, nitrite, ammonia, phosphorus (total and reactive), dissolved oxygen, and carbon dioxide.

6.3.12 Total Number of Sampling Locations

Below is Table 6.12 that depicts the number of proposed soil and groundwater locations to be implemented during the RI activities. The number of proposed soil and groundwater samples to be analyzed at the on-site and off-site laboratories are located in Table 1.1 of the QAPP.

Table 6.11
IRP Site No. 11 Sampling Program
Oregon Air National Guard, Portland, Oregon

Site No. 11	Number of Locations	Field Lab Samples	Field Analysis	Fixed-Base Lab.				
				VOC	SVOC	PPM*	PCB	TPH
Sediment	-	-	-	-	-	-	-	-
Surface Soil	2	2	VOC SVOC	-	-	2	-	2
Subsurface Soil	5	10	VOC SVOC	-	-	10	-	10
Total Soil Samples	-	**12**	-	**1 MAX**	**1 MAX**	**12**	-	**12**
Surface Water	-	-	-	-	-	-	-	-
Primary Points	5	5	VOC,SVOC	-	-	10	-	-
Secondary Points	5	5	VOC,SVOC	-	-	10	-	-
Primary Vertical Profile	2	6	VOC SVOC	-	-	12	-	-
Secondary Vertical Profile	2	6	VOC SVOC	-	-	12	-	-
Existing MW	-	-	-	-	-	-	-	-
Total Water Samples	-	**5 MIN/ 22 MAX**	-	**2 MAX**	**2 MAX**	**10 MIN/ 44 MAX**	-	-

Notes: VOCs = Volatile Organic Compounds
*PPM groundwater will include filtered & unfiltered samples
Max = Maximum
SVOCs = Semi volatile organic compounds
TPH = Total Petroleum Hydrocarbon
MW = Monitoring Well
PPMs = Priority Pollutant Metals
PCB = Polychlorinated Biphenyl
Min = Minimum

Table 6.12
Total Number of Soil and Groundwater Sample Locations
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

IRP Sites	Background	1	2	3	4	5	7	8	9	10	11	Total
Sediment	0	0	0	0	7	0	0	0	0	1	0	8
Surface Soil	5	0	0	3	0	3	2	0	2	3	2	20
Subsurface Soil	5	0	5	7	0	3	3	0	12	5	5	45
Surface Water	0	0	0	0	7	0	0	0	0	1	0	8
Primary Points	0	7	5	7	0	6	2	3	12	5	5	52
Secondary Points	0	7	3	4	0	5	2	0	5	4	5	35
Primary Vertical Points	0	3	2	2	0	2	0	0	3	3	2	17
Secondary Vertical Points	0	2	0	1	0	1	0	0	2	0	2	8
Monitoring Wells-Shallow	4	0	0	0	0	0	0	0	0	0	0	4
Monitoring Wells-Deep	3	0	0	0	0	0	0	0	0	0	0	3
Existing Monitoring Wells	1	2	2	1	0	1	3	0	0	0	0	10

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SECTION 7.0 FIELD INVESTIGATION PROCEDURES

7.1 INVESTIGATIVE METHODS AND PROCEDURES

7.1.1 Geophysical Surveys

Three types of geophysical surveys will be performed to evaluate the suspected area of the former landfill at IRP Site No. 8. The surveys include horizontal EM, MAG, and GPR. Review of historical aerial photographs and site geology will be performed prior to surveying. The site will be divided into a 30 ft by 30 ft grid. The grid system will be referenced to existing permanent features. The grid system origin and nodes will be marked prior to surveying. The results of the three surveys combined are expected to be effective in identifying any buried material in the area investigated.

An EM survey will be used to identify differences between conductivities of disturbed ground and buried solid waste and that of conductivities in surrounding undisturbed soil. The EM survey will be conducted with measurements recorded at the grid nodes (SOP No.2). A MAG survey will be performed to identify areas of anomalous magnetic field strengths associated with buried metal containers. The survey is proposed to be conducted on a 15 foot spacing on and between the grid to allow sufficient resolution (SOP No. 1). However, grid spacing may be adjusted in the field, depending on the preliminary field test evaluation data. The size and geometry of buried metals containers will be described based on the detector signal intensity during the survey. A GPR survey will be conducted continuously along the grid lines to identify natural sedimentary structures as well as the sharp contacts that occur between disturbed ground and undisturbed ground (SOP No. 3).

7.1.2 Conventional Monitoring Well Installation

Conventional monitoring wells will be installed as background monitoring wells to obtain groundwater samples for the purpose of defining the project contaminant action goals. It is anticipated that a hollow stem auger rig with 8.00- or 6.75-inch ID auger flights will be utilized. Soil samples will be collected continuously from the surface to total depth in a 24-inch split-spoon sampler. The total depth is expected to be approximately 15 ft bgs for the water table wells and 40 ft bgs for the deep wells. Specific details regarding the soil sampling procedures are detailed in a later section. All monitoring wells will be constructed in accordance with current Oregon

Water Resources Department regulations and will be installed by a licensed well driller. Permits required for well construction will be obtained prior to mobilization.

The monitoring wells will be constructed of 2-inch threaded PVC casing and screens. Screen length will be 10 feet for water table wells and should straddle the water table to allow for seasonal fluctuations. The screen length for the deep wells will be 5 ft. Slot size is expected to be 0.010 inches. The optimum placement of the screen for water table wells would have 3 ft of screen above the water table and 7 ft below the water table. Should the water table be at a shallow depth where the minimum Oregon requirements can not be met, a variance will be solicited and acquired prior to completing the well. All risers will be set round, plumb, and true to line. Centralizers will be used as necessary. A well construction diagram will be prepared for each monitoring well. The well construction materials will be decontaminated before installation in the boreholes.

Filter pack will be tremied into the well from 1 foot below the bottom of the screen to 2 feet above the top of the screen. The filter pack will consist of 10-20 size, cleaned, washed and bagged silica sand. Based on previous investigations, the sand pack and screen slot size have been designed such that the screen does not become plugged and aquifer material is not produced into the well annulus. A bentonite slurry seal 2 feet thick will be placed on top of the sand pack. The remaining borehole will be grouted to the ground surface with a cement/bentonite mixture.

HAZWRAP Position Papers 4 (*Filter Pack Size, Slot Size, and Well Screen Size Selection for Monitoring Wells*) and 13 (*Grout Contamination of Groundwater*) will be incorporated into the monitoring well installation program.

Monitoring wells will be completed by finishing the casing approximately 2-1/2 feet above the top of the borehole (short sections of casing may be required) or by flush surface mount. The contractor will contact HAZWRAP and the Base to determine whether a well will be completed with a flush mounting or be completed above ground. For above-grade completion, a 6-inch diameter protective steel riser pipe equipped with a locking cap will be set in the neat concrete grout around the well casing. The well number will be permanently marked on the locking cap. The grout will be built up around the riser pipe in a 3-foot square pad and will be sloped away to aid in runoff. All risers shall be provided with keyed-alike brass or stainless steel locks. The lock keys will be given to the 142nd FG on-site representative.

Three 4-inch diameter steel guard posts filled with cement will be placed around the protective steel riser pipe of monitoring wells. All guard posts will be painted yellow to increase visibility. The bases for the guard posts will be set into concrete and will extend at least 3.5 feet above ground surface. Any well that is to be temporarily removed from service or left incomplete due to delays in construction will be capped with a watertight cap and equipped with a "vandal proof" cover satisfying the ODEQ regulations and recommendations.

Wells completed by flush surface mount will be flush with the land surface. The casing will be cut 2 to 3 inches below land surface and installed with a protective locking lid consisting of a cast-iron valve box assembly. The valve box will be placed in the center of the hole with the top just above the ground surface. A three feet by three feet concrete pad will be placed around the well cover and sloped away from the valve box to divert drainage. The well will also be fitted with a watertight compression casing cap to prevent infiltration of surface water. The well number will be clearly marked on the valve box lid and well casing. All well assemblies will be secured with keyed-alike brass or stainless steel locks. The lock keys will be given to the 142nd FG on-site representative.

7.1.3 Well Development

Well development will not be performed for at least 24 hours after installation and completion to allow sufficient time for the grout to set. The monitoring wells will be developed by submersible pump or surge block (RCRA Groundwater Monitoring, Technical Guidance, 1992) without the use of any type of acids, dispersing agents or explosives. No water or other liquid will be introduced into the well during development other than formation water from that well. Care will be exercised to ensure that the screen is not damaged during development. Water from well development will be placed in drums and segregated by well. Each drum will be clearly labeled depicting at a minimum the well number, the date filled and the name of the Base. The field team will follow specific guidelines presented in SOP No.6 included in Appendix C.

7.1.4 Soil Sampling

Soil samples will be collected utilizing two different methods during the RI. The DPT will be used during the point phase investigations and a conventional hollow stem auger rig will be used to drill the background borings.

Soil samples collected using the hollow-stem auger rig will follow the standard sampling techniques that conform to American Society for Testing Materials (ASTM) D-1586 standards and sampling procedures. Basically soil samples will be collected continuously using a 2-inch diameter split-spoon sampler approximately 24 inches in length. The sampling device is driven ahead of the lead auger flight (via a 140-pound (lb.) hammer dropped 30 inches) into undisturbed soil. Each split-spoon will contain 6-inch long brass sleeves.

Soil samples collected using direct push technology will include driving a 1-inch diameter sampling tube approximately 18 inches in length to a specified sampling depth. At the specified depth the center rod is extracted leaving the sampling tube in place. The sampling tube is driven into the undisturbed soil. Brass liners will also be placed in the sampling tube to collect the sample. Specific guidelines regarding the procedures for DPT are detailed in SOP No.5. Sand retention baskets will be used in sampling tools during soil sampling activities.

Soils will be classified using the Unified Soils Classification System and described according to ASTM D2488-69, "Description of Soils (Visual Manual Procedure)." A minimum of three samples will be collected from the vadose zone in each boring: one sample from the surface (0-1 ft bgs), one sample from the middle of the vadose zone (3-5 ft bgs) and one sample at the bottom of the vadose zone above the water table (6-8 ft bgs). Two samples will be submitted to field laboratory for SVOC and VOC analysis.

An experienced geologist will be present during the operation of the drilling rig for the logging of samples, monitoring of drilling operations, recording of soil and groundwater data, monitoring and recording the well installation procedures, and preparing the boring logs and well construction diagrams.

The on-site geologist will record lithology during drilling of each borehole. This lithologic record will be based on visual inspection of soil samples supplemented by examination of drill cuttings.

The following information will be logged for each boring;

- Boring identification number;
- Name of driller and geologist;
- Method of drilling;
- Bit size, if applicable;
- Sampling method and depth;

- Standard Penetration Test (SPT blows), if applicable;
- PID readings;
- Hole location and elevation;
- Reference elevations for all depth measurements;
- Detailed soil descriptions, including soil moisture/saturation condition;
- Depth at which each distinct stratum is encountered;
- Depth at which groundwater is first encountered while drilling;
- Depth of completed boring or well;
- Location of any fractures, joints, faults, cavities, or weathered zones identified; and
- Signatures of those performing this work.

During all drilling operations, a PID will be used to monitor the breathing zone for organic vapors to determine the need for respiratory protection.

Additionally, a combustible gas indicator will be used during drilling operations to monitor for explosive gases. Special actions will be required if explosive vapors reach 10% of the lower explosive limit (LEL). These actions are described in the site Health and Safety Plan (Appendix A).

7.1.5 Groundwater Point Installation

Groundwater samples will be collected using DPT and employing one of the three well point configurations detailed in SOP No. 5. The initial configuration to be employed is the mill-slotted well point. It is possible that the field team will start with this method and recommend changing to a different method. This will not be done without agreement from HAZWRAP and the HQ ANG/CEVR.

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SECTION 8.0 SAMPLE COLLECTION PROCEDURES

8.1 SEDIMENT/SURFACE SOIL SAMPLING

Sediment samples will be collected with a stainless steel scoop and will be placed in glass jars. Surface soil samples will be collected from 0-1 foot depths using a stainless steel long-handled corer with a brass liner or split-spoon sampler with brass liner. The liner will be removed and the ends of the liner sealed Teflon™ barrier, a square piece of aluminum foil, and Teflon™ or plastic endcaps. The sample tubes and jars will be labeled and placed into a zip-top bag and immediately placed into a cooler containing ice for delivery to the laboratory. VOC samples will be collected first to prevent vaporization of any volatile analytes.

If there is insufficient recovery to meet the minimum sample volume for analysis, then additional samples will be collected within one-foot of the initial sampling location. The corer will be forced to a depth of no more than one foot and removed in a smooth twisting motion. The sample will be extruded into a decontaminated stainless steel pan. The sample volume will be homogenized and individual sample bottles filled using the homogenized mixture. Samples will be sealed, labeled and placed into an ice-filled cooler for transportation to the laboratory.

8.2 SUBSURFACE SOIL SAMPLING

Subsurface soil samples will be obtained from test borings by a California-style or similar sampler DPT with Teflon™ liners and/or brass tubes. Liners will be placed inside the split-spoon samplers to minimize the loss of VOCs through volatilization. Two samples will be collected, one from the intervals 3-5 ft and 6-8 ft . The 6-8 ft sample will be adjusted in the field to correspond to the unsaturated soil zone immediately above the watertable. All samples will be screened using a PID and analyzed on site using a field GC/MS. Samples will also be submitted to the fixed-base laboratory for VOC (5%), SVOC (5%), PCB (100%), TPH (100%), and PPM (100%), depending on the site specific DQOs.

8.3 GROUNDWATER SAMPLING

Groundwater samples will be collected from all DPT groundwater grab sampling points, existing monitoring wells, and newly installed monitoring wells. Samples will be screened in the field for VOC and SVOC constituents. Additional volumes will be collected for fixed-base laboratory analysis. This data will be used to determine if groundwater contamination is present and, if

present, to aid in defining the horizontal and vertical extent of groundwater contamination and background groundwater conditions. Filtered and unfiltered groundwater samples for metal analysis will be collected for the fixed-base laboratory. Monitoring well sampling will not take place until well construction and development has been completed. Before the well is purged and sampled, well headspace will be checked for organic vapors using a PID. The water level in the well will then be measured with a water level indicator and recorded in the field logbook. If available, the elevation of the surveyed measuring point will also be recorded.

If product is detected within a well, its thickness will be determined using an oil/water interface probe, or a clear bailer. After the water level and product measurements have been made, a low flow pump (RCRA Groundwater Monitoring, Technical Guidance, 1992) will be used for purging and sampling, if allowed by USEPA Region X and the ODEQ. If product is detected, the well will not be purged or sampled. Field measurements of pH, turbidity, conductivity, and temperature will be measured to ensure that each well has stabilized. Wells will be purged until they have stabilized or a total of three to five well volumes have been recovered. In wells with slow recovery/recharge, VOC samples will be collected when sufficient volume of liquid has recovered in the well. All other samples will be collected based on the site specific sampling program.

8.4 SURFACE WATER

Surface water samples will be collected from the Main Drainage Ditch at IRP Site No. 4. All water samples will be collected directly into sample bottles. Samples will be collected from the downstream section first, depending on the visual inspection of the drainage pit prior to sampling. The sample will be collected with as little disturbance of underlying sediments as possible. Samples will be collected for VOC and SVOC analysis for the on-site laboratory, and for VOC, SVOC, PPM (unfiltered), and PCB for the fixed-base laboratory. Samples will immediately be sealed, labeled and placed into an ice-filled cooler for transportation to the laboratory.

8.5 LAND SURVEY

Newly installed monitoring wells and sampling locations will be surveyed by a state-licensed surveyor to define their locations and elevations for future reference. Proposed soil sampling locations will be marked and surveyed prior to beginning soil sampling. All wells and borings shall be referenced both horizontally and vertically. The top of the well casing will be surveyed off a permanent marker (e.g., manhole cover, fire hydrant, bridge abutment, etc.), and shot to

the nearest 0.01 foot. A permanent benchmark will be established near each site, and tied to Geodetic Vertical Datum of 1929. All positions and coordinates of all permanent points within the control traverse shall be shown. Boreholes will be located within ± 0.1 foot horizontally and ± 0.01 foot vertically.

8.6 FIELD QUALITY CONTROL

Field measurement parameters will include PID readings, temperature, pH, turbidity, conductivity, dissolved oxygen, carbon dioxide, water level, and field GC/MS results. The temperature of the water will be measured using an electronic digital thermometer. This measurement will also be used to calibrate the pH and conductivity meter. The pH of the water will be measured using a portable pH meter. The meter will be calibrated daily using traceable buffer solutions of the appropriate range for expected pH values. The meter will also be recalibrated periodically during periods of continued use as recommended by the manufacturer. The specific conductance of the water will be measured with a portable specific conductance meter. A standard potassium chloride solution will be used to calibrate the instrument daily. The meter will also be recalibrated periodically during periods of continued use as recommended by the manufacturer. Turbidity refers to the solids and organic matter that do not settle out of water. A light scattering turbidity measurement equipment will be used which will measure turbidity in nephelometric turbidity units (NTUs). The PID will be calibrated daily with 100 parts per million (ppm) isobutylene, following manufacturers recommendations. Field measurement instrument calibration procedures are discussed in detail in Appendix B (QAPP), Section 8.0. The water level measuring device will be visually inspected of tears, bends or any damage that could effect the measure. Field GC/MS instruments will be calibrated according to the CLP methods referenced in the QAPP. Field GC/MS CLP VOC and SVOC analyses, however, will require a 3-point calibration.

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SECTION 9.0 SUMMARY OF POTENTIAL ARARs

The investigation is being conducted pursuant to CERCLA and in conformance with the requirements of the NCP. Section 121 of CERCLA requires remedial actions to comply with all ARARs under federal and state environmental laws. Applicable requirements are substantive environmental protection requirements specifically addressing a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a site. Relevant and appropriate requirements are those which, while not applicable, are sufficiently similar to circumstances encountered at a site that their use is well suited.

There are three types of ARARs:

- Location-specific ARARs are restrictions imposed on activities or concentrations of hazardous substances solely because they occur in special locations.

- Chemical-specific ARARs are health- or risk-based criteria which establish the acceptable amount or concentration of a chemical that may be found in or discharged to the ambient environment;

- Action-specific ARARs set controls or restrictions on design and performance aspects of activities at the site.

Activities conducted during the Remedial Investigation/Feasibility Study (RI/FS) process must comply with ARARs to the extent practicable (55 Fed. Reg. 8756, Mar. 8, 1990).

ARARs are progressively identified and applied on a site specific basis as the RI/FS proceeds. The initial step in the process entails the survey of potential ARARs for the remedial process at the subject site. The next step in the ARARs process is the comparison of statutory and regulatory requirements with site-specific factors to evaluate whether a site is currently in compliance.

Suspected sources of contamination, historical site usage, and the known or potential effects of contaminants on the environment help identify potential federal, state, and local ARARs. The application of ARARs to the RI process is dependent upon results of the field investigation. Confirmation of contamination at a site, identification of the specific contaminant(s), and subsequent laboratory analysis and quantification determine the application of chemical specific

ARARs. Additional action- and location-specific ARARs are determined when potential remediation alternatives are considered.

The degree to which site-specific factors are incorporated into the ARARs development process varies considerably. In the case of hazardous chemicals, evaluation of site-specific factors is an integral part of the ARARs process even when prerequisites based on statutory or regulatory requirements exist. Action- and location-specific ARARs are determined when any required remediation options are being considered. Groundwater ARARs are considered to be pertinent because some chemicals of potential concern in soils may impact groundwater.

The following Section provides a preliminary summary of key ARARs that may be relevant to RI activities at the Base.

9.1 RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

Federal RCRA regulations governing hazardous waste management provide potential ARARs for IRP activities at the Base. RCRA regulations are applicable chemical-specific ARARs if waste is listed in 40 CFR 261 or exhibits RCRA characteristics, and may be relevant and appropriate if otherwise. RCRA may also impose location- and action-specific ARARs. USEPA's investigation-derived waste (IDW) policy discusses options for managing materials, such as drill cuttings and purge water, which are generated during RI activities.

Waste Identification. Materials excavated or removed from the site (e.g., drill cuttings, contaminated soil, and contaminated groundwater) will be regulated as hazardous waste if they meet the federal definition provided in 40 CFR 261.

Waste Generation and Transport. RI activities or remedial alternatives involving the movement or removal of hazardous waste trigger RCRA hazardous waste generator requirements provided in 40 CFR 262. When hazardous waste is shipped off-site in regulated amounts, the manifesting and transport procedures in 40 CFR 263 must be followed. As applicable, the Base will sign all hazardous waste manifests as the generator of the waste.

Land Disposal Restrictions. RCRA regulations in 40 CFR 268 set forth Land Disposal Restrictions for RCRA wastes. These restrictions were required by the Hazardous and Solid Waste Amendments (HSWA) of 1984 to prohibit the continued land disposal of hazardous wastes beyond specified dates. However, wastes treated in accordance with treatment standards provided

in 40 CFR 268 Subpart D may be land-disposed as provided therein. The Land Disposal Restrictions potentially affect the disposal of hazardous wastes generated during the RI or subsequent remedial activities and may be considered both action- and chemical- specific ARARs.

Treatment, Storage, and Disposal Facilities (TSD). If remedial alternatives for the site involve the construction or use of RCRA TSD facilities, regulations provided in 40 CFR 264 become action-specific ARARs. Various subsections of 40 CFR 264 provide standards and procedures for the operation of hazardous waste TSD facilities. For example, a common disposal practice is to create a waste pile of contaminated soil as part of the remediation process. 40 CFR 264, Subpart L promulgates Federal standards for waste piles, including their design, operating requirements, monitoring and inspection, closure, and post-closure care. Other subparts control tank systems, surface impoundments, land treatment units, landfills, incinerators, and miscellaneous TSD units.

9.2 SAFE DRINKING WATER ACT (SDWA)

Federal regulations promulgated pursuant to the SDWA govern the quality of, usage of, and discharge to groundwater. Maximum Contaminant Levels (MCLs) specified in 40 CFR 141.11 - 141.16 are legally enforceable federal drinking water standards established by USEPA Maximum Contaminant Level Goals (MCLGs) specified in 40 CFR 141.50-141.51 are nonenforceable, health-based goals for drinking water. MCLGs are set at levels at which no adverse health effects may arise. MCLs are set as close as practical to MCLGs. The Primary Federal Drinking Water Standards and the Oregon Numerical Groundwater Quality Standards for Volatile and Semi-Volatile Organic, and Inorganic Constituents are presented in Table 9.1. As stated by the USEPA, state drinking water standards must be no less stringent than ones established by the USEPA. Consequently, the State of Oregon enforces their Groundwater Quality Standards or USEPA MCLs dependent upon which is the most stringent. These potential ARARs may be used to identify a range of target clean-up levels for groundwater at the Base.

9.3 CLEAN WATER ACT (CWA)

The Federal CWA and pursuant regulations provide potential location-, chemical-, and action-specific ARARs for IRP activities at the Base. Since surface water bodies are located both on-site and downgradient of the sites, federal, state, and/or local surface water ARARs will apply.

Table 9.1
Volatile and Semivolatile Organic and Inorganic Compounds, Federal Drinking Water Standards and Oregon Numeric Water Quality Standards 142nd Fighter Group, Oregon Air National Guard Portland International Airport, Portland, Oregon

Parameters	U.S. EPA MCLs (mg/L) Primary NDWS	U.S. EPA MCLGs (mg/L) Secondary NDWS	Oregon MMLs (mg/L)	Oregon RLs (mg/L)
ORGANIC COMPOUNDS				
Benzene	0.005	0	0.005	0.005
Benzo(A)pyrene	0	0.0002	--	--
Bromodichloromethane	0.08[a]	0	0.10[b]	0.100[b]
Bromoform	0.08[a]	0	0.10[b]	0.100[b]
Carbon tetrachloride	0.005	0	0.005	0.005
1,3-Dichlorobenzene	0.6	0.6	--	--
Chloroform	0.08[a]	0	--	0.4
Dibromochloropropane (DBCP)	0.0002	0	--	--
Dibromochloromethane	--	--	--	0.1[b]
1,2-Dibromo-3-chloropropane	0.0002	0	--	--
p-Dichlorobenzene	0.075	0.075	0.075	0.075
o-Dichlorobenzene	0.6	0.6	--	--
m-Dichlorobenzene	0.6	0.6	--	--
1,2-Dichloroethane	0.005	0	0.005	0.005
1,1-Dichloroethylene	0.007	0.007	0.007	0.007
cis-1, 2-Dichloroethylene	0.07	0.07	--	--
trans-1,2-Dichloroethylene	0.1	0.1	--	--
1,2-Dichloropropane	0.005	0	--	--
cis-1,3-Dichloropropene	--	0	--	--
trans-1,3-Dichloropropene	--	0	--	--
Diethylphthalate	0.008	0	--	--
Ethylbenzene	0.7	0.7	--	--
Ethylene dibromide (EDB)	0.00005	0	--	--
Hexachlorobenzene	0.001	0	--	--
Hexachlorobutadiene	--	0.001	--	--
Hexachlorocyclopentadiene	0.05	0.05	--	--
Pentachlorophenol	0.001	0	--	--
Polychlorinated biphenyls (PCBs)	0.0005	0	--	--
Styrene	0.1	0.1	--	--
Tetrachloroethylene	0.005	0	--	--
Toluene	1	1	--	--
Total trihalomethanes (TTHM)	0.08[a]	--	0.10	0.100
1,2,4-Trichlorobenzene	0.07	0.07	--	--
1,1,1-Trichloroethane	0.2	0.2	0.20	0.200
1,1,2-Trichloroethane	0.005	0.003	--	--
Trichloroethylene (TCE)	0.005	0	0.005	0.005
Vinyl chloride	0.002	0	0.002	0.002
Xylenes	10	10	--	--

Table 9.1 (Concluded)
Volatile and Semivolatile Organic and Inorganic Compounds, Federal Drinking Water Standards and Oregon Numeric Water Quality Standards
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

Parameters	U.S. EPA MCLs (mg/L) Primary NDWS	U.S. EPA MCLGs (mg/L) Secondary NDWS	Oregon MMLs (mg/L)	Oregon RLs (mg/L)
INORGANIC CHEMICALS				
Antimony	0.006	0.006	--	--
Arsenic	0.05	--	--	0.05
Beryllium	0.004	0.004	--	--
Cadmium	0.005	0.005	--	0.01
Chromium	0.1	0.1	--	0.05
Copper	TT[a]	1.3	--	--
Lead	TT[a]	0	--	0.05
Mercury	0.002	0.002	--	0.002
Nickel	0.1	0.1	--	--
Selenium	0.05	0.05	--	0.01
Silver	--	0.1	--	0.05
Thallium	0.002	0.0005	--	--
Zinc	--	5.0	--	5.0 (GL)

EPA = Environmental Protection Agency
GL = Oregon Numerical Groundwater Guidance Level (Non-Enforceable Goal); OAR 340-40-020
MCL = Maximum Contaminant Level (Enforceable Level) (USEPA, May 1995, Drinking Water and Health Advisories)
MCLG = Maximum Contaminant Level Goal (Non-Enforceable Goal) (USEPA, May 1995, Drinking Water and Health Advisories)
MML = Maximum Measurable Level (Interim Standard for Contaminants in Groundwater); OAR 340-40-090
NDWS = National Drinking Water Standard
RL = Oregon Numerical Groundwater Reference Level (Enforceable Level); OAR 340-40-020
TT = At Tap - Treatment Technique
-- = Standard Not Established
[a] Total Trihalomethanes, Proposed
[b] Total Trihalomethanes

Ambient Water Quality Criteria (AWQC). The USEPA has promulgated AWQC for surface water through 40 CFR 131. Candidate remedial actions involving contaminated surface water or groundwater must be evaluated within the context of follow-on water usage and the circumstances or the actual or potential release before implementation. As a general statement, AWQC are applied when evaluating clean-up levels.

National Pollutant Discharge Elimination System (NPDES). The OANG is a co-permittee in an NPDES permit with the Portland International Airport. Permit requirements and conditions provide action- and chemical-specific ARARs.

9.4 OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

Although not strictly ARARs, as required by the NCP at 40 CFR 300.150, all site operations are governed by OSHA Standards of Health and Safety under 29 CFR 1910.120, Hazardous Waste and Emergency Response. The health and safety officer for the RI field investigation will ensure all site workers meet the requirements of the health and safety plan, maintain appropriate training, possess and use all PPE, and take all precautions to eliminate exposure to unsafe or unhealthy situations. Other applicable OSHA requirements include health and safety for construction (29 CFR 1926), general industry (29 CFR 1910), and recordkeeping and reporting (29 CFR 1904).

9.5 HAZARDOUS MATERIALS TRANSPORTATION ACT (HMTA)

If material containing hazardous wastes is to be transported off-site, U.S. Department of Transportation (DOT) hazardous material transportation requirements in 49 CFR 171-179, pursuant to the federal HMTA, may be action-specific ARARs for RI activities. These requirements are supplemental to RCRA transporter requirements in 40 CFR 263. Stored hazardous materials will be containerized and labeled in accordance with requirements.

9.6 CLEAN AIR ACT (CAA)

The Federal Clean Air Act may provide action and chemical specific ARARs for IRP activities, including field investigations and subsequent remedial actions, including soil excavation or incineration. All remediation activities must comply with National Primary and Secondary Ambient Air Quality Standards (NAAQS) found in 40 CFR 50. Rules governing particulate matter less than 10 microns in size (PM_{10}), which can have potential detrimental effects on the lungs, are contained in 40 CFR 50. All field activities involving air emissions must ensure compliance with the PM_{10} standard.

9.7 FEDERAL GUIDANCE TO BE CONSIDERED (TBC)

In addition to federal and state requirements that may be applicable or relevant and appropriate to IRP activities, federal non-regulatory criteria should be considered. These chemical specific TBCs, used to help characterize risks and to set clean-up goals, include the following:

- USEPA Risk Reference Doses;
- USEPA Health Advisories;
- USEPA Carcinogen Assessment Group Potency Factors;
- USEPA Acceptable Intake Values, Chronic and Subchronic; and
- USEPA Guidance Manual on Water-related Fate of 129 Priority Pollutants.

9.8 STATE REQUIREMENTS

In addition to federal ARARs, several State of Oregon regulations may be applicable or relevant and appropriate to RI activities and potential remedial alternatives at the OANG.

Oregon Air Pollution Control Standards. The Oregon Department of Environmental Quality (ODEQ) regulates all general and specific air emissions by setting standards and regulations controlling air contaminant emissions so as to maintain air quality at the highest possible levels and to maintain contaminants at the lowest possible levels. These regulations could provide relevant and appropriate requirements for any remedial activities at the 142nd FG site.

Oregon Hazardous Waste Management Regulations. Rules and criteria for the identification, storage, treatment, transportation, and disposal of hazardous wastes are established in these regulations. These regulations provide potential ARARs for RI activities involving the movement or removal of hazardous wastes.

Oregon Groundwater Quality Protection Regulations. Standards have been written to supplement federal water quality requirements and may be considered potential action or chemical specific ARARs for the RI or planned remedial actions. The ODEQ regulates all public water supplies in the state and has established MCLs which may be used as cleanup levels for remedial activities. Table 9.1 includes Oregon Groundwater Reference and Guidance Levels which are contaminant concentration level used to evaluate the significance of a particular contaminant in groundwater. Reference Levels generally indicate when groundwater may not be suitable for human consumption. Guidance Levels generally indicate when groundwater may not be suitable for use as drinking water due to its aesthetic characteristics.

Oregon State-Wide Water Quality Management Plan. These rules describe Oregon's plans for the management of the quality of public waters within the State of Oregon. The ODEQ evaluates each discharge and activity on a case-by-case basis. Since surface water bodies are located both

on-site and downgradient of the sites, these regulations provide potential ARARs for RI activities and subsequent remedial actions.

Oregon Oil and Hazardous Material Spills and Releases. The ODEQ uses these regulations to specify the reporting requirements, cleanup standards, and liability attached to a spill or release or threatened spill or release involving oil or hazardous material. These regulations provide potential ARARs for RI activities and subsequent remedial actions.

Oregon Hazardous Substance Remedial Action Rules. These regulations establish the standards and process to be used for the determination of removal, remedial action, and degree of cleanup required in the event of a release or threat of a release of a hazardous substance. These regulations provide potential ARARs for RI activities and subsequent remedial actions. Table 9.2 includes Oregon Soil Cleanup Standards for specific contaminants, including Residential and Industrial Maximum Allowable Soil Concentrations and Optional Soil Cleanup Levels, each for application in specific situations. These numbers will be considered for setting soil cleanup levels in future remediation activities.

Oregon Underground Storage Tank Rules. These regulations impose requirements for release detection notification and reporting, corrective actions, closures, and other subjects of USTs. If during the course of the investigation a UST is found to be leaking, these ARARs will become action-specific standards. Table 9.3 presents numeric soil clenup standards for TPH. The matrix cleanup levels are determined by assigning a score to five site-specific parameters:

- Depth to groundwater
- Mean annual precipitation
- Native soil or rock type
- Sensitivity of uppermost aquifer
- Potential receptors

Table 9.2
Volatile and Semivolatile Organic and Inorganic Compounds, Oregon Soil Cleanup Standards
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

Parameters	Maximum Residential[a,b] (mg/kg)	Maximum Industrial[a,b] (mg/kg)	Cleanup Level[c,d] (mg/kg)
ORGANIC COMPOUNDS			
Acenapthene	20000	100000	2000
Anthracene	80000	600000	20000
Benzene	1	2	0.1
Benzo(a)anthracene	0.1	1	0.1
Benzo(k)fluoranthene	0.1	1	0.1
Benzo(A)pyrene	0.1	1	0.1
Bromodichloromethane	5	40	0.01
Bromoform	8.0	700	0.3
Carbon tetrachloride	5	40	0.2
Chlorobenzene	5000	40000	50
Chloroform	100	900	0.4
Dibenz(a,h)anthracene	0.110.1	--	--
Dibromochlormethane	5000	40000	--
Dibromochloropropane (DBCP)	--	--	--
p-Dichlorobenzene	--	--	--
o-Dichlorobenzene	--	--	--
3,3'-Dichlorobenzidine	1	10	0.05
1,2-Dichloroethane	--	--	--
1,1-Dichloroethylene	0.01	0.02	0.01
cis-1, 2-Dichloroethylene	3000	20000	4
trans-1,2-Dichloroethylene	5000	40000	5
1,2-Dichloropropane	--	--	--
2,6-Dinitrotoluene	1	8	0.002
Ethylbenzene	15000	20000	100
Ethylene dibromide (EDB)	--	--	--
Fluoranthene	10000	80000	8000
Fluorene	10000	80000	2000
Hexachlorobenzene	0.4	4	0.4
Hexachlorobutadiene	--	--	--
Hexachlorocyclopentadiene	--	--	--
Hexachloroethane	300	2000	100
Indeno(1,2,3-cd)pyrene	0.1	1	0.1
Methylene chloride	7	10	0.1
Naphthalene	1000	8000	30
Pentachlorophenol	--	--	--
Polychlorinated biphenyls (PCBs)	--	--	--
Pyrene	80000	60000	6000
Styrene	--	--	--
Tetrachloroethylene	9	10	0.3
Toluene	5000	6000	80
Total trihalomethanes (TTHM)	--	--	--
1,2,4-Trichlorobenzene	--	--	--
1,1,1-Trichloroethane	7000	9000	9

Table 9.2 (Concluded)
Volatile and Semivolatile Organic and Inorganic Compounds, Oregon Soil Cleanup Standards
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

Parameters	Maximum Residential[a,b] (mg/kg)	Maximum Industrial[a,b] (mg/kg)	Cleanup Level[c,d] (mg/kg)
1,1,2-Trichloroethane	1000	8000	0.08
Trichloroethylene (TCE)	20	20	0.4
Trichlorphenol	60	500	--
Vinyl chloride	0.03	0.05	0.008
Xylenes	2000	2500	800
INORGANIC CHEMICALS			
Antimony	--	--	--
Arsenic	0.4	3	0.004
Beryllium	0.1	1	0.002
Cadmium	100	1000	0.5
Chromium	1000	1500	10
Copper	10000	80000	100
Lead	200	2000	2
Mercury	80	600	0.2
Nickel	5000	40000	10
Selenium	--	--	--
Silver	1500	10000	5
Thallium	--	--	--
Zinc	--	--	--

mg/kg = milligrams per kilogram

-- = Standard Not Established

[a]Oregon Department of Environmental Quality Hazardous Substance Remedial Action Rules, Appendix 1

[b]Maximum Allowable Soil Concentration

[c] Oregon Soil Cleanup Table (OAR 340-122-045)

[d]Cleanup Levels for inorganic chemicals are expressed as leaachate concentrations.

Table 9.3
Total Petroleum Hydrocarbons
Numeric Soil Cleanup Standards[a]
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

Parameter	Matrix Cleanup Level[b] (ppm)		
	Level 1	Level 2	Level 3
TPH (Gasoline)	40	80	130
TPH (Diesel)	100	500	1,000

TPH = total petroleum hydrocarbons
ppm = parts per million
[a]Oregon numeric soil cleanup standards (OAR 340-122-335)
[b]Oregon matrix cleanup level (OAR 340-122-325)

9.9 LOCATION-SPECIFIC ARARs

No location-specific ARARs have yet been identified at this site. New information discovered during the field investigation and subsequent laboratory analyses may broaden the initial set of project ARARs.

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SECTION 10.0 SCREENING RISK ASSESSMENT

10.1 DEVELOPMENT OF THE CONCEPTUAL SITE MODEL

Chemical and physical properties that affect the transport of identified contaminants at each site will be evaluated with respect to the geologic and hydrogeologic conditions that effect contaminant migration. In addition, possible degradation products of detected contaminants will also be evaluated as they relate to future exposure. As a part of this analysis, a site conceptual model for each site will be constructed to evaluate, illustrate, and document potential routes of migration and possible receptors. The conceptual site model will serve as the basis for defining the scope of the risk-based screening process.

10.2 HUMAN HEALTH SCREENING RISK ASSESSMENT

10.2.1 The Screening Process

Screening generally refers to a process of using conservative assumptions about contaminant concentration and exposure to rapidly identify two distinct groups of contaminants: contaminants that definitely pose no health or ecological risk, and contaminants that may warrant a detailed more site-specific analysis to establish whether concern is warranted. Screening is useful because it rapidly and definitively focuses risk issues to only those contaminants and exposure routes that may pose a potential problem, allowing for a less expensive and more targeted baseline risk assessment (BRA) effort. At many sites the screening illustrates that no further risk assessment is required because all the contaminants are removed from concern. In other cases BRAs can focus on a small group of contaminants in a limited number of contaminated media and exposure routes, dramatically reducing the effort needed to conduct the BRA, thus simplifying decisions about remediation.

In the screening process for these sites, a three-phased approach is recommended to conduct the screening. Figure 10.1 outlines the screening process that consists of a comparison of contaminant concentrations to RBCs and, if needed, a comparison to background, and a BRA. This work plan addresses the first phase of the screening process (comparison to RBCs). The primary exposure pathways for each site will be screened, based on the exposure pathways identified by the conceptual site models. Primary exposure pathways will be defined as those exposure routes that, in the professional experience of the risk assessor, are likely to dominate

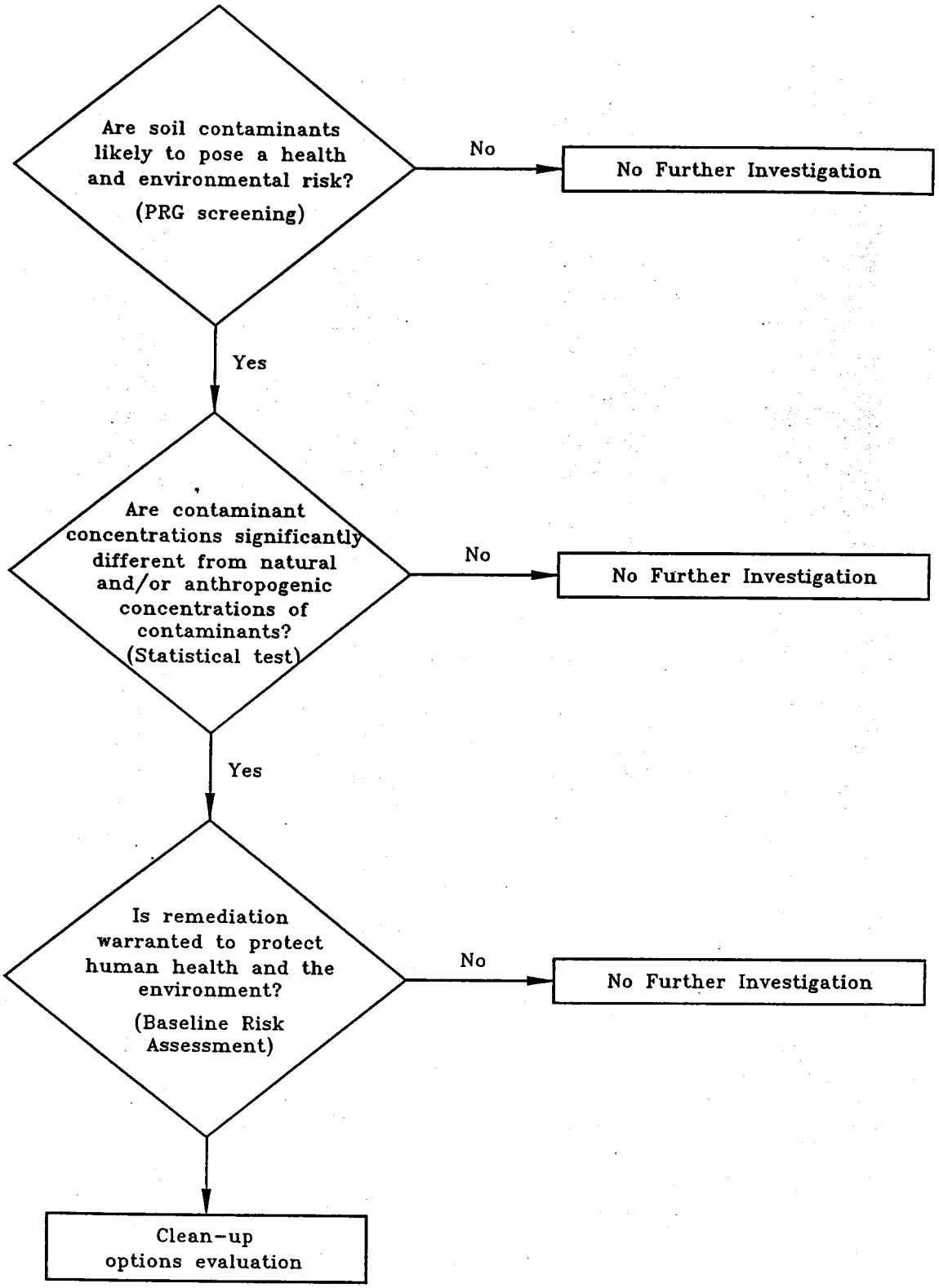

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FIGURE 10.1

PORTLAND\SCRNRISK

OVERALL SCREENING RISK ASSESSMENT PROCESS
142nd FG, Oregon ANG
Portland International Airport
Portland, Oregon

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the risk for a given receptor and contaminated medium. Because USEPA Region X has used USEPA Region III methods in the past for site screening and RBC development, this screening assessment will use the most recent revision of the USEPA Region III method for applying RBCs for site screening described in "Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening" (EPA/903/R-93-001). These RBCs are established at risk levels of 1×10^{-6} and hazard quotient of 1 for residential exposures and all acceptable data will be screened against the appropriate Region III RBCs.

The RBC methodology, while described in detail in the referenced document (Appendix E), involves the use of the maximum concentration of each substance detected in each medium at each site. If the maximum concentration exceeds the RBC for that medium, the contaminant is retained for inclusion in the background comparison screening. This second phase of screening, consists of a comparison of site samples with upgradient background samples. If, after screening against background, Contaminants of Potential Concern (COPCs) remain, the third phase of screening, consisting of a BRA, will need to be performed. A BRA will establish which COPCs are actually contaminants of concern posing significant risk to receptors. Noting that in this screening framework COPCs do not necessarily warrant remedial action at the site is important. However, COPCs do warrant further evaluation in a BRA. Only the BRA (to be conducted in Phase III) identifies which contaminants warrant remediation. Ultimately, contaminants that do not exceed an RBC or background concentration are dropped from consideration in the contaminated medium in question. If a specific contaminant does not exceed its RBC or background concentration in any medium, the contaminant is dropped from further consideration. If no contaminant in a specific medium exceeds its RBC or background concentration, the medium is dropped from future risk assessment activities.

The results of the contaminant screening will be presented by site. If no contaminants in any media exceed the RBCs, the media at the site may be recommended for no further action. If no media at any site exceeds the RBCs, then the entire site may be recommended for no further action. Contaminants that exceed the RBCs will be recommended for a Phase II screening against background. Should this second screening identify COPCs, a focused risk assessment will be designed to evaluate those contaminated media and pathways of potential concern defined by the screening.

10.2.2 Characterizing the Ecological Setting

The ecological risk assessment should provide information on potential threats to plants and animals (other than humans and domesticated species as addressed in the previous section) associated with contaminants or with actions designed to remediate a site. Since most of the site addressed by this investigation are primarily in industrial areas with little wildlife, few if any of the sites are expected to require an extensive environmental evaluation. However, a preliminary ecological reconnaissance will be performed at the Base to identify the potential presence of any threatened and/or endangered species, or sensitive habitat that may support them. The site and directly adjacent areas will also be evaluated to determine if there are any potentially protected areas, or if any possible contamination identified on any site could potentially migrate to a protected area. It is possible that the greatest source of risk to ecological receptors from site contaminants exists off the site at the ultimate discharge to the Columbia Slough.

The following information will be obtained for each site:

- Information describing the common flora and fauna;
- Presence and location of any threatened, endangered, or rare species, and if present, presence and location of potential supporting critical habitats; and
- Presence or location of any sensitive environmental areas.

Based on this information, Ecological Site Conceptual Models will be developed.

10.3 ECOLOGICAL RISK COMPARISONS

Data appropriate for the receptors identified in the ecological reconnaissance will be screened against appropriate ecological benchmark values. Possible sources for the benchmark comparison values include USEPA, ODEQ, State Departments of Natural Resources and Conservation, Oak Ridge National Laboratory, foreign government sources (Canada), and the open literature. The final selection of benchmarks will depend on the identification of receptors and exposure pathways.

Data from sites with common characteristics such as grassy areas, wooded areas, and drainage areas will be combined for all the sites and compared with the appropriate terrestrial, sediment or surface water benchmark. The results of the bench mark screening will be presented with the results of the human health risk-based screening. If contaminant levels exceed benchmarks and potential receptors have been identified, further ecological risk assessment may be warranted.

SECTION 11.0 EQUIPMENT DECONTAMINATION PROCEDURES

Decontamination of drilling and sampling equipment is necessary to minimize the possible spread of contamination to clean zones, to reduce exposure to personnel, and to reduce the possibility of cross-contamination of samples when equipment is to be used more than once during a sampling event. To verify the thoroughness of the decontamination procedures, rinseate samples (equipment blank) will be collected and analyzed, as required, from the decontaminated sampling equipment. The procedures and frequency of these samples are described in the project QAPP included as Appendix B.

11.1 HEAVY EQUIPMENT

Heavy equipment (i.e., drill rig, augers, and DPT) will be decontaminated at a washrack designated appropriate by the Base and selected on the basis of accessibility to heavy equipment, including the drilling rig, DPT, and downhole equipment. The decontamination procedures will follow the SOP No. 4 presented in Appendix C.

11.2 SAMPLING EQUIPMENT

Sampling equipment (i.e., split spoons, spatulas, stainless steel bowls) will be decontaminated at or near the area chosen for heavy equipment decontamination, or at an area established on-site away from the suspected area(s) of contamination. At each site, the sampling equipment will not be allowed to come into contact with the ground or any potentially contaminated surface. Decontamination procedures will follow the SOP No. 7 presented in Appendix C.

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SECTION 12.0 BOREHOLE ABANDONMENT PROCEDURES

Once the drilling and soil sampling operations have been completed the borings will be grouted. All borings will be backfilled with cement grout using a tremie pipe. The cement grout will consist of a mixture of Portland cement, (ASTM C-150), and water in the proportion of not more than seven gallons of potable water per bag of cement (one cubic foot or 94 pounds). Additionally, a 3% by weight volume of bentonite powder will be added to the mixture. All borings will be backfilled with grout immediately after the sampling has been accomplished to prevent downward migration of contaminants through the open borehole. In order to prevent accidents, all borings will be clearly marked or guarded at all times until backfilled.

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SECTION 13.0 INVESTIGATIVE DERIVED WASTE (IDW) MANAGEMENT

During field investigation activities, several different types of solid and liquid wastes may be generated including drill cuttings, well purging waters, decontamination fluids, and other drilling incidentals. The ultimate disposal of these wastes depends on the degree of environmental contamination present at the site and the likelihood that these wastes would be similarly contaminated. Custody of all drummed material, including soil cuttings, well development and purge waters, and decontamination fluids will be turned over to OANG personnel at the end of the field effort, who will be responsible for their final disposition. The following outlines a strategy for the disposal of these wastes. Analytical results and appropriate decontamination will be provided to the Base to assist in their disposition of IDW that is designated for off-site treatment, storage, and disposal (TSD).

13.1 SOIL CUTTINGS

A minimal amount of drill cuttings are expected to be generated during field activities at the ten sites due to the proposed direct push technique. However, the background wells will be installed using a conventional drill rig and are expected to generate a more significant amount of drill cuttings. Because drilling will only occur at background locations, we anticipate encountering clean soils. Therefore, all soil cuttings derived during drilling operations will be initially placed on plastic next to the borehole and covered. If field laboratory results from soils analyses indicates the cuttings are below USEPA Region III Industrial RBCs, they will be spread at the surface near the borehole location. If field laboratory results from soils analyses indicates the cuttings exceed Region IX PRGs, they will be drummed and sampled for TCLP characteristics. If the TCLP analysis indicates the soil is classified as a hazardous waste, it will be disposed of as such. If the TCLP analysis indicates the soil is not a hazardous waste, it will be disposed of in a controlled Sanitary Landfill. Figure 13.1 is a decision tree diagram that illustrates this approach.

Upon completion of the drilling activities, any containerized drill cuttings will be transported to an on-base staging area designated by OANG personnel. Residual sample material from the field screening laboratory will be containerized near the field office screening area and transported to the staging area until the laboratory analysis is completed. OANG personnel shall be responsible for the final disposition of all containerized drill cuttings.

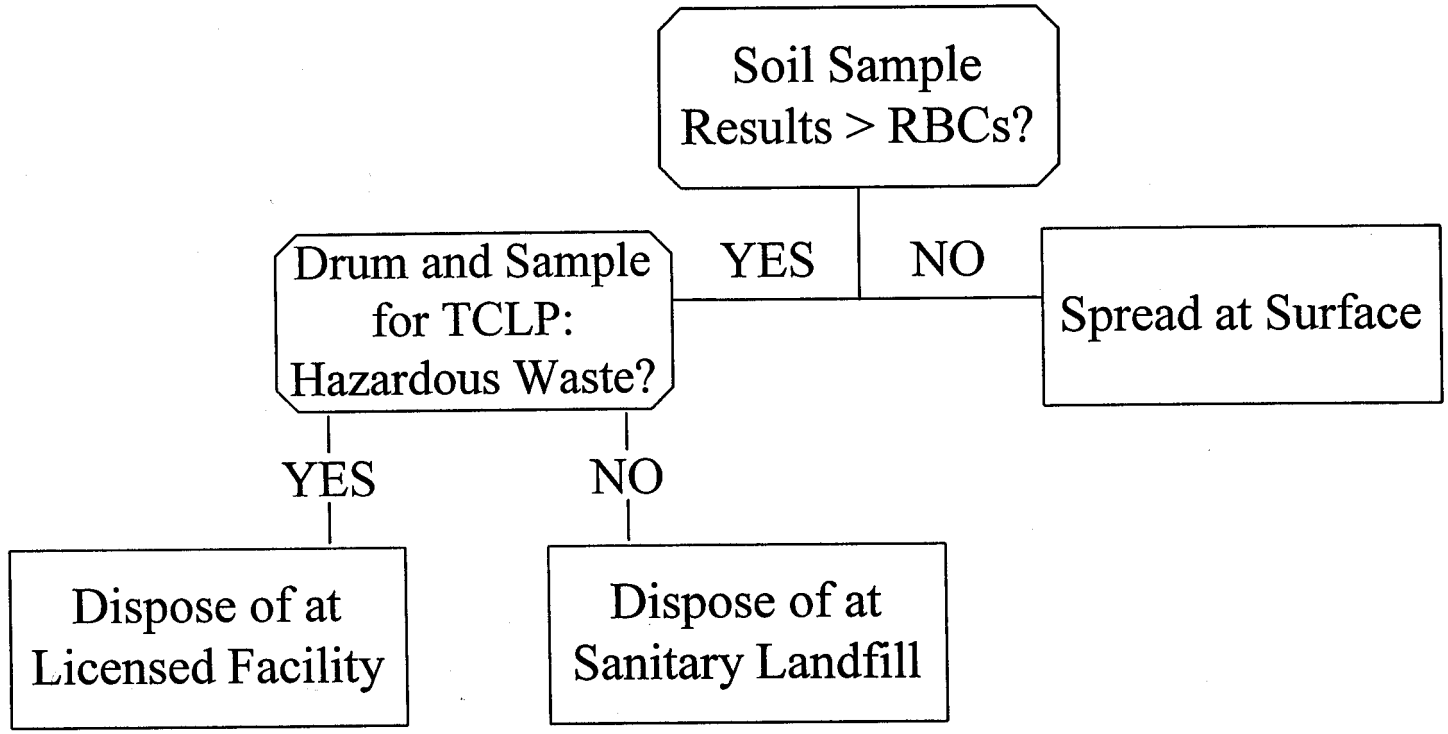

Figure 13.1

Soil IDW Disposal Decision Diagram
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

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13.2 WELL DEVELOPMENT AND PURGE WATERS

Well development and purge waters will be containerized at each site in poly tanks or drums. Representative samples will be screened for VOCs and SVOCs with the field GC/MS. If results are within permit requirements, the fluids will be discharged to the sanitary sewer. If results exceed permit requirements, the fluid will be sampled for TCLP characteristics. Analytical results indicating the fluid is a Hazardous Waste will result in drumming and disposal at a licensed facility. Analytical results indicating the fluid is not a Hazardous Waste will result in drumming and disposal at a sanitary landfill. All fluids are expected to be disposed of at the Base waste water treatment plant via the sanitary sewer. OANG personnel shall be responsible for the final disposition of all containerized fluids. Analytical results and appropriate decontamination will be provided to the Base to assist in their disposition of IDW that is designated for off-site transportation. Figure 13.2 presents a decision tree that illustrates this process.

13.3 DECONTAMINATION FLUIDS

Heavy equipment such as drilling equipment and augers, will be decontaminated at a designated area located by the Base contact. The decontamination process and construction of the pad will follow SOP No. 4.

Water generated from the decontamination of the sampling equipment will be containerized on-site in poly tanks or drums. The waters will not be segregated by site since the differences in chemical composition are expected to be minimal between sites. The decontamination fluids will be sampled and handled like well development fluids. Figure 13.2 illustrates the decision tree process for determining proper disposal .

13.4 DRILLING INCIDENTALS

Discarded personal protective equipment, plastic, aluminum foil, and other drilling incidentals will be placed in plastic garbage bags and disposed of in a sanitary landfill.

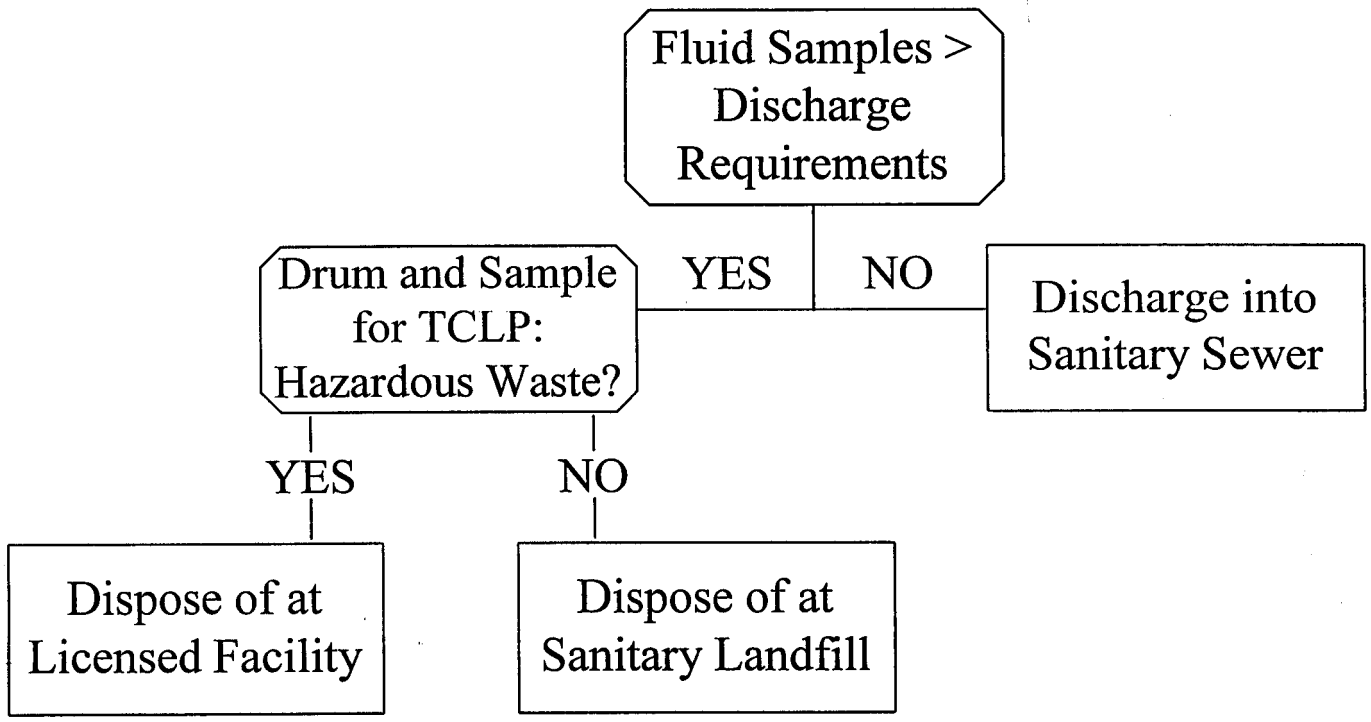

Figure 13.2

Water IDW Disposal Decision Diagram
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

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SECTION 14.0 PROJECT SCHEDULE AND DELIVERABLES

14.1 PROJECT SCHEDULE

The project schedule presented in Figure 14.1 outlines benchmark events for accomplishing preparation of the RI WP. Schedule status will be updated as necessary to reflect any significant changes to the project tasks as they are completed. Updated schedules will be submitted to HAZWRAP and the Base PMs, with any deviations noted and explained. Monthly progress reports will be submitted to the HAZWRAP PM only. Significant events which may occur and affect the schedule will be reported out-of-cycle where necessary, if deemed appropriate to insure efficient project implementation.

14.2 MEETINGS

The project contractor will attend a project kickoff meeting at the Base prior to the start of field activities and up to three project progress meetings during the field effort to discuss project findings and recommendations. These meetings will be attended by the project contractor, Project Manager, HAZWRAP representative, and the Base Project Manager. Within one week of meeting completion, five copies of draft summary minutes will be submitted to HAZWRAP and the Base PMs for review and approval. The minutes will include a summary of key issues discussed and their disposition, a list of meeting attendees with address and telephone numbers, and any other pertinent information discussed at the meeting. Upon approval, copies of the minutes will be submitted to persons included on a distribution list compiled from the meeting attendee list. Minutes will not be distributed to individuals or organizations whose names do not appear on the distribution list without prior authorization from HAZWRAP and the HQ ANG/CEVR.

14.3 PROJECT DELIVERABLES

14.3.1 Field Technical Memorandum

Throughout the duration of field activities, a technical memorandum will be submitted to the HAZWRAP and the Base PMs upon completion of each laboratory Sample Data Package. This progress update will include the Sample Data Package, a compilation of the analytical results, an

Work Plan Preparation Schedule
142nd FG, Oregon Air National Guard
Portland, Oregon

ID	Task Name	Duration	Start	Finish
1	**Work Plan Preparation**	**88d**	**10/10/95**	**2/8/96**
2	Submit Internal Draft for Review	37d	10/10/95	11/29/95
3	OpTech Receives Comments and Revises Work Plan	9d	11/30/95	12/12/95
4	Submit Draft Final for Review	30d	12/13/95	1/23/96
5	OpTech Receives Comments and Revises Work Plan	10d	1/24/96	2/6/96
6	Submit Final Document	2d	2/7/96	2/8/96

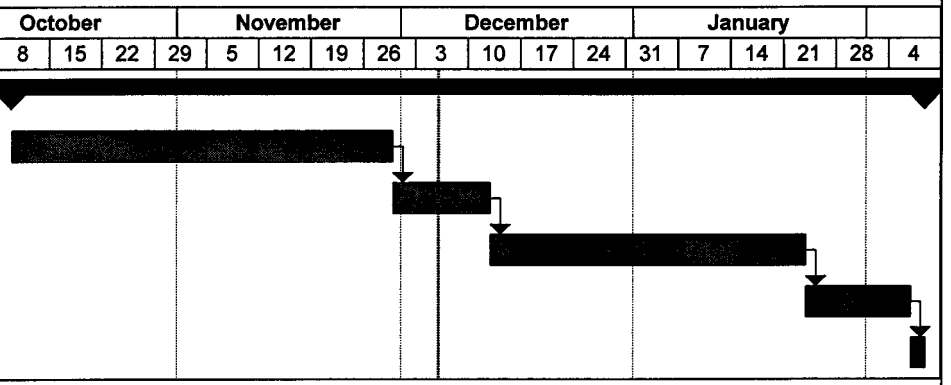

FIGURE 14.1

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

isoconcentration map of the sample results included in the data package, and a discussion of any problems encountered as well as a proposed solution. Technical memoranda, preliminary reports, field documentation, unvalidated analytical data and reports, etc., will be marked with the following statement: "This data has not been finalized and is not intended for distribution or final interpretation. Only data presented in the final RI report should be considered as final data. Interim data will be used for interpretive purposes and will only be available for use by approved personnel."

14.3.2 Monthly Progress Reports

A monthly letter report summarizing contract progress to date will be submitted to the HAZWRAP PM. The report will be a management summary and will address any problems encountered in completing project tasks, as well as any changes in scope or direction of the project. The report will be formatted on a work breakdown structure basis to show the actual effort expended versus the scheduled levels of effort, the remaining duration, and the planned and accrued costs.

The letter report will be accompanied by a Contract Management Summary Work Sheet which will include: activity start date if the activity started during the reporting month; the activity finish date if the activity was finished during the reporting month; and the remaining days to complete any ongoing activities. The monthly progress report shall be submitted to the HAZWRAP PM no later than the eighth working day of each month for the duration of the Task Order.

14.3.3 Remedial Investigation Report

14.3.3.1 Remedial Investigation Report Purpose

The RI Report will document the investigative strategy and rationale, the field and analytical data collected, the risk assessment findings, and the conclusions and recommendations for each of the ten sites addressed by the RI. The report will provide documentation to quantify the horizontal and vertical magnitude and extent of contamination and describe the migration of any contaminants from the sites which may exist. In addition, it will address the possible risk to human health and the environment from any contaminants of concern and support informed decisions on possible remedial technologies which may be proposed for any of the ten sites.

14.3.3.2 Remedial Investigation Report Format

Table 14.1 outlines the RI Report format proposed for the ten IRP Sites at the OANG.

14.3.4 Decision Documents

If results from the RI investigation indicate a recommendation of NFA for the medium and/or site(s) of concern, a DD will be prepared in accordance with CERCLA, Superfund Amendments and Reauthorization Act (SARA), and the NCP. The DD shall, at a minimum, contain a brief summary of site conditions with detailed rationale to support the NFA recommendation.

Table 14.1
RI Report Format
Oregon Air National Guard, Portland, Oregon

RI Report Format

Executive Summary
1.0 Introduction
- 1.1 Purpose of Report and Report Organization
- 1.2 Site Background
  - 1.2.1 Site Description
  - 1.2.2 Previous Investigations

2.0 Study Area Investigation
- 2.1 Surface Features
- 2.2 Surface Water and Sediment Investigations
- 2.3 Geological Investigations
- 2.4 Soil and Vadose Zone Investigations
- 2.5 Groundwater Investigations

3.0 Physical Characteristics of the Study Area
- 3.1 Surface Features
- 3.2 Demography and Land Use
- 3.3 Surface Water Hydrology
- 3.4 Geology and Hydrogeology
- 3.5 Soils

4.0 Nature and Extent of Contamination
- 4.1 Sources
- 4.2 Soils and Vadose Zone
- 4.3 Surface Water
- 4.4 Groundwater

5.0 Screening Risk Assessment
- 5.1 Human Health Assessment
- 5.2 Environmental (Ecological) Evaluation

6.0 Summary and Conclusions
- 6.1 Summary
  - 6.1.1 Nature and Extent of Contamination
  - 6.1.2 Fate and Transport
  - 6.1.3 Risk Assessment
- 6.2 Conclusions
  - 6.2.1 Data Limitations and Recommendations for Future Work
  - 6.2.2 Recommended Remedial Action Objectives

Appendices
A. Technical Memoranda on Field Activities
B. Analytical Data and QA/QC Evaluation Results
C. Risk Assessment Methods

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SECTION 15.0 REFERENCES

Bodek, L. et al., 1988. Environmental Inorganic Chemistry. Pergamon Press.

Brown, K. et al., 1983. Hazardous Waste Land Treatment. Butterworth Publishers.

Carson, Bonnie L. H.V. Ellis III and J.L. McCann, 1987. Toxicology and Biological Monitoring of Metals in Humans. Lewis Publishers, Inc., Chelsea, MI.

Clement Associates, Inc., 1985. Chemical, Physical, and Biological Properties of Compounds Present at Hazardous Waste Sites. Final Report. U.S. Environmental Protection Agency, Washington, D.C.

Eisler, R., 1988. Lead Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. U.S. Department of the Interior, Fish and Wildlife Service. Biological Report 85(1.14). April, 1988. Contaminant Hazard Reviews Report No. 14.

Engineering-Science, Inc., 1989. Quality Assurance Program Plan for HAZWRAP.

HAZWRAP, 1987. Implementation Plan - Quality Assurance Requirements, Martin Marietta Energy Systems, Inc. (DOE/HWP-38).

HAZWRAP, 1989a. Hazardous Waste Remedial Actions Program - Remedial Actions Planning Program - Quality Assurance Program Plan, Martin Marietta Energy Systems, Inc. (DOE/HWP-79, HZ-RAP-102).

HAZWRAP, 1989b. Quality Control Requirements for Field Methods, Martin Marietta Energy Systems, Inc. (HZ-RAP-102-2, DOE/HWP-69R1).

HAZWRAP, 1990. Requirements for Quality Control of Analytical Data, Martin Marietta Energy Systems, Inc. (DOE/HWP-65R1).

HMTC (Hazardous Materials Technical Center), 1987. Installation Restoration Program Phase I, Record search for Portland International Airport (ANG), Portland, Oregon and North Band Air National Guard Station, North Bend, Oregon.

Martin Marietta Energy Systems, Inc., 1989. Chemical Assessments Team Procedures Manual, Section 2.10, pages 1-4. Oak Ridge National Laboratory.

Martin Marietta Energy Systems Technical Position Paper No. 1. "Use of Liners in Subsurface Soil Sampling."

National Oceanic Atmospheric Administration, Environmental Data and Information Service, 1980. Local Climatological Data, Annual Summary With Comparative Data. National Climatic Center, Asheville, North Carolina.

National Academy of Sciences, National Academy of Engineering, Committee on Water Quality Criteria, 1974. Water Quality Criteria 1972. EPA-R3-73-033. U.S. Environmental Protection Agency.

Office of Solid Waste and Emergency Response, 1989. Interim Guidance on Establishing Soil Lead Clean-up Levels at Superfund Sites. Directive Numbers: OSWER, 9355.4-02. United States Environmental Protection Agency, Office of Solid Waste and Emergency Response.

SAIC, 1991. Final Report for Site Investigation at the 142nd Fighter Interceptor Group, Oregon National Guard, Portland International Airport. Prepared for National Guard Bureau, Air National Guard Support Center, Andrews Air Force Base, Maryland. Prepared by SAIC, Bothell, Washington. May 1992.

Sax, N.I., 1984. Dangerous Properties of Industrial Materials. 6th edition. Van Nostrand Reinhold Co., New York.

Sax, N.I. (ed.), 1987. Ethylbenzene. Dangerous Properties of Industrial Materials Report. vol. 7(2):13-35.

Sax, N.I. and R.J. Lewis, 1989. Dangerous Properties of Industrial Materials. Seventh edition. Volume I. New York: Van Nostrand-Reinhold Co.

Sax, N., 1984. Dangerous Properties of Industrial Materials. Sixth edition. New York: Van Nostrand-Reinhold Co.

SRH, 1988. Report on Limited Investigation of Soil Contamination. Oregon Air National Guard, Portland, Oregon.

U.S. Environmental Protection Agency. Drinking water Regulations and Health Advisories. Washington DC., EPA/822-R-94-001.

U.S. Environmental Protection Agency, 1994. Region III. Risk Base Concentration, 4th Quarter. EPA/903/R-93-001.

U.S. Environmental Protection Agency, 1980. Hazardous Waste Land Treatment. Solid and Hazardous Waste Research Division. SW-874. Cincinnati, Ohio.

U.S. Environmental Protection Agency, 1983. Hazardous Waste Land Treatment. Revised Edition. Office of Solid Waste and Emergency Response. SW-874. Washington, D.C.

U.S. Environmental Protection Agency, 1985. Chemical, Physical, and Biological Properties of Compounds Present at Hazardous Waste Sites. Office of Waste Programs Enforcement, Washington D.C.

U.S. Environmental Protection Agency, 1986. Superfund Public Health Evaluation Manual. Office of Emergency and Remedial Response. Washington, D.C. EPA 540/1-86/060.

U.S. Environmental Protection Agency, 1988. CERCLA Compliance with Other Laws Manual, Part I, Interim Final. Office of Solid Waste and Emergency Response. EPA/540/G-89/006.

U.S. Environmental Protection Agency, 1989a. National Primary and Secondary Drinking Water Regulations; Proposed Rule. Federal Register 54(97);22062.

U.S. Environmental Protection Agency, 1989b. Risk Assessment Guidance for Superfund, Volume II Environmental Evaluation Manual, Interim Final. Washington, D.C.

U.S. Environmental Protection Agency, 1990. National Primary and Secondary Drinking Water Regulations; Synthetic Organic Chemicals; Proposed Rule, Federal Register 55 (14-3).

U.S. Environmental Protection Agency, 1991. Region 10 Supplemental Risk Assessment Guidance for Superfund, Seattle, Washington.

U.S. Environmental Protection Agency, 1992. Framework for Ecological Risk Assessment. EPA /630/R-92/001.

U.S. Environmental Protection Agency, 1993. Data Quality Objectives Process for Superfund: Draft Guidance Interim Final Guidance. Washington, D.C. EPA/540/G-93/071.

U.S. Environmental Protection Agency, 1993. Guidance for Planning for Data Collection in Support of Environmental Decision Making Using the Data Quality Objective Process. EPA QA/G-4. EPA Quality Assurance Management Staff.

Yeh, N., 1988. Electronic Hazardous Assessment Rating System. Remedial Assessment, Compliance, and Engineering Dept., Dynamac Corp., Rockville, Maryland.

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APPENDIX A
HEALTH AND SAFETY PLAN

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SITE SPECIFIC HEALTH AND SAFETY PLAN

For

REMEDIAL INVESTIGATION ACTIVITIES

at

142ND FIGHTER GROUP

OREGON AIR NATIONAL GUARD

PORTLAND INTERNATIONAL AIRPORT

PORTLAND, OREGON

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EMERGENCY CONTACTS

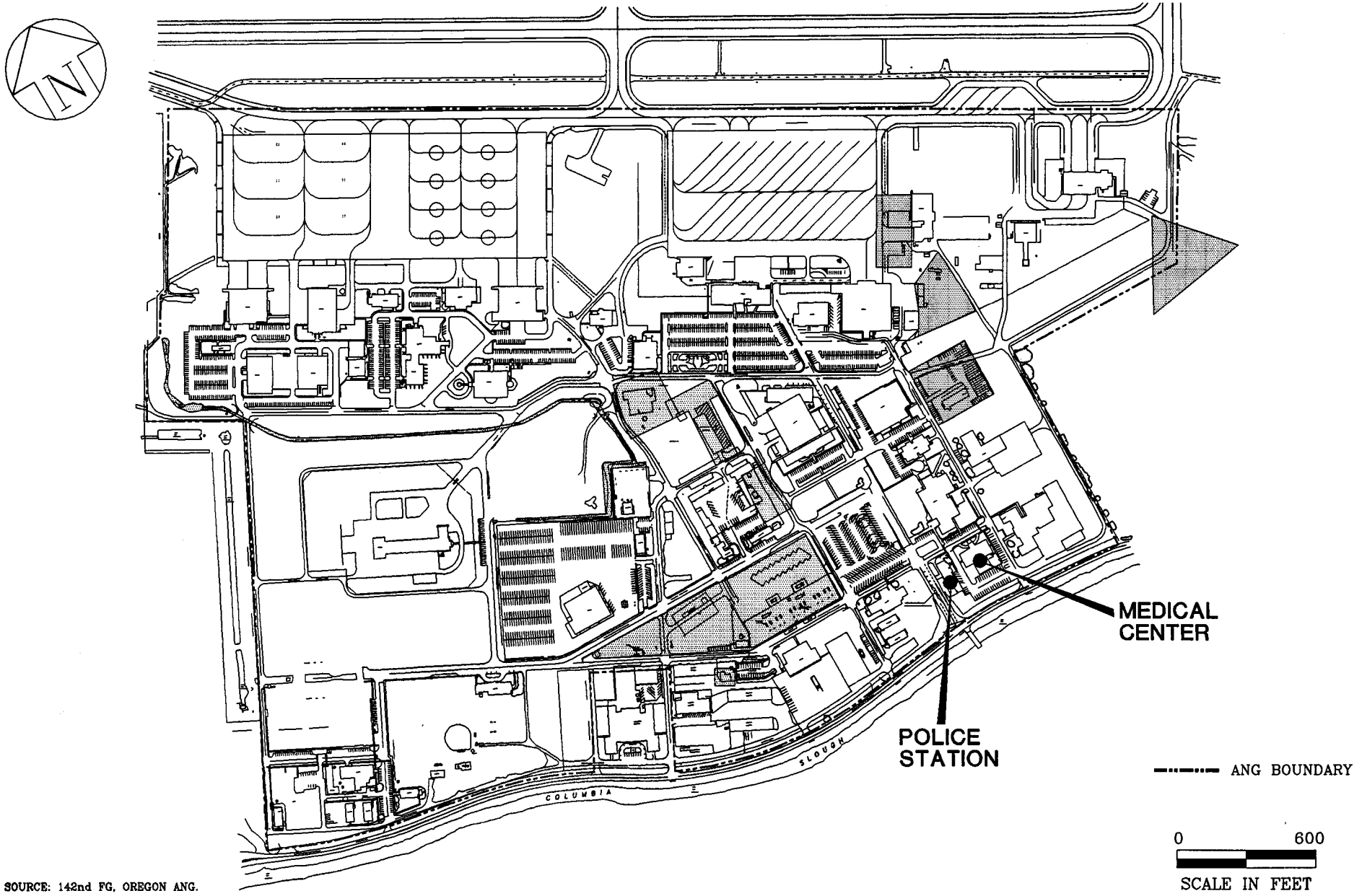
In the event of any situation or unplanned occurrence requiring assistance, the appropriate contact(s) will be made from the list below. For emergency situations, contact will first be made with the Field Team Leader, who will notify emergency personnel, and then contact the appropriate response teams. This emergency contacts list must be kept in an easily accessible location at the site.

142nd FG, Oregon ANGB Portland, Oregon
Emergency Contacts

Contact	Phone Number
Ambulance (on-base)	118
Ambulance (off-base)	911
Fire (on-base)	117
Fire (off-base)	911
Base Security	116
Woodland Park Hospital 10300 N.E. Hancock Portland, OR	503-257-5500
Major Roger Rein	503-335-4462
Jon Williams Site Health & Safety Coordinator	210-731-0000
OpTech Project Manager David Bunn	423-483-8020 1-800-983-4337

Route to Base Hospital:
In the event of an emergency, the nearest medical facility is located at Building 135. The location is shown on the map on the following page (Figure A.1).

Route to Medical Center:
The route to the nearest off-base hospital is shown on the following page (Figure A.2).
A detailed map will be posted during the investigation.



SOURCE: 142nd FG, OREGON ANG.

FIGURE A.1

PL_FIG\ST_SITES

EMERGENCY ROUTE TO BASE MEDICAL CENTER

142nd FG, Oregon ANG
Portland International Airport
Portland, Oregon

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

DECEMBER 1995

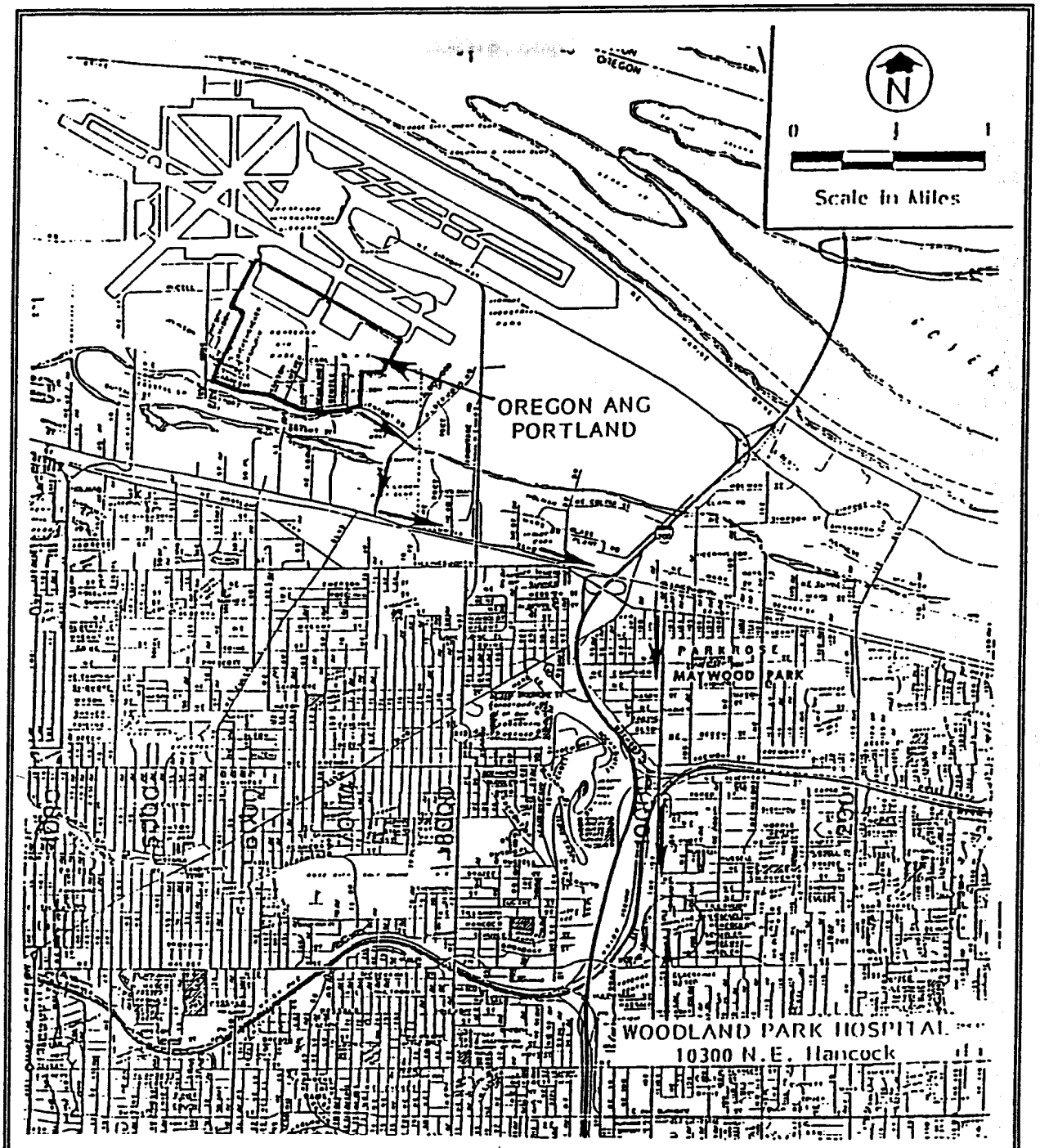


FIGURE A.2	EMERGENCY ROUTE TO MEDICAL CENTER (Note: Not to scale)	OPTECH OPERATIONAL TECHNOLOGIES CORPORATION

AIR MONITORING ACTION LEVELS

Concentration of Organic Vapors in Breathing Zone	Action
≥1 ppm Benzene	Stop work until levels dissipate or ventilate area
> 100 ppm* toluene, xylene, or ethylbenzene	Stop work until levels dissipate or ventilate area

* Based on Threshold Limit Value -- Time Weighted Average (TLV-TWA) exposure limits for toluene, xylene, and ethylbenzene, assuming benzene does not exceed 1 part per million (ppm).

EMERGENCY RESPONSE PLAN

The Contractor's policy will be to evacuate personnel from areas involved in hazardous material emergencies and to summon outside assistance from agencies with personnel trained to deal with the specific emergency. This section outlines the procedures to be followed by the Contractor's personnel in the event of a site emergency. These procedures are to be reviewed during the on-site safety briefings conducted by the Site Safety Officer (SSO).

Paramedics will be summoned in the event of a serious injury; they will arrange to transport the victim to the nearest appropriate facility. A first aid kit will be available at the site for use in case of minor injuries. If anyone receives a splash or particle in the eye, the portable eyewash will be used to irrigate the eye for 15 minutes. If direct contact with contaminants occurs, affected skin areas will be washed immediately with soap and water.

In the event of serious trauma or unknown chemical exposure, the employee should be stabilized by on-site personnel while the emergency phone number list is consulted and an ambulance immediately summoned.

Workers with suspected back or neck injuries are NOT to be moved until professional emergency assistance arrives.

At least one person at the site will have current certification in First Aid and Cardiopulmonary Resuscitation (CPR).

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Attachment: Safety Plan Acceptance Agreement Form.

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LIST OF ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
ANG	Air National Guard
BP	Boiling point
C	Ceiling
°C	Degrees Celsius
CBC	Complete Blood Count
CFR	Code of Federal Regulations
CGI	Combustible Gas Indicator
CHSC	Company Health and Safety Coordinator
CHSM	Corporate Health and Safety Manager
CIH	Certified Industrial Hygienist
CPR	Cardiopulmonary Resuscitation
CRC	Contaminant Reduction Corridor
CRZ	Contamination Reduction Zone
DCE	Dichloroethene
DEET	N,N-diethyl-m-toluamide
DOT	Department of Transportation
EZ	Exclusion Zone
F	Fahrenheit
FID	Flame ionization detector
FG	Fighter Group
FP	Flash point
FTL	Field Team Leader
HSP	Health and Safety Plan
HEPA	High Efficiency Particulate Air
LEL	Lower explosive limit
MSDS	Material Safety Data Sheets
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
O_2	Oxygen
OANG	Oregon Air National Guard
OpTech	Operational Technologies Corporation
OSHA	Occupational Safety and Health Administration
PEL	Permissible exposure limit
PIA	Portland International Airport
PID	Photoionization detector

LIST OF ACRONYMS (CONCLUDED)

PM	Project Manager
POL	Petroleum, Oil, and Lubricants
PPE	Personal protective equipment
ppm	parts per million
SCBA	Self-Contained Breathing Apparatus
SSO	Site Safety Officer
SSR	Subcontractor's Safety Representative
STEL	Short term exposure limit
SZ	Support Zone
TCE	Trichloroethene
TLV	Threshold limit value
TLV-TWA	Threshold limit value/time weighted average
UEL	Upper explosive limit
UV	Ultra-violet
VOCs	Volatile Organic Compounds
VP	Vapor pressure
WBGT	Wet Bulb Globe Temperature

SECTION 1.0 INTRODUCTION

1.1 PURPOSE AND POLICY

The purpose of this Health and Safety Plan (HSP) is to establish personnel protection standards and mandatory safety practices and procedures for all work conducted at the 142nd Fighter Group (FG), Portland International Airport (PIA), Portland, Oregon. The plan assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may arise while performing the field work.

1.2 APPLICABILITY

This plan was developed specifically for field operations at 142nd Fighter Group (FG), Oregon ANG, PIA, Portland, Oregon. This plan complies with, but does not replace, Federal Health and Safety Regulations as set forth in 29 Code of Federal Regulations (CFR) 1910 and 1926, and is to be used by all on-site personnel as a supplement to such rules, regulations, and guidance.

The provisions of the plan are mandatory for all on-site personnel engaged in hazardous material management activities, including, but not limited to: initial site reconnaissance, hydrogeologic and soil investigation, mobilization, project operations, and demobilization. All contractor and subcontractor personnel who engage in on-site project activities must be familiar with and comply with this plan. Any supplemental subcontractors' plans must conform to this plan.

1.2.1 Modification of Plan

Changing or unanticipated site conditions may require modification of this project safety plan in order to maintain a safe and healthful work environment. Any proposed changes to this plan should be reviewed with the Contractor Corporate Health and Safety Manager (CHSM) or designee, prior to change implementation. If this is not feasible, the Project Manager (PM) may modify the plan and record all changes in the site logbook. Under no circumstances will modifications to this plan conflict with Federal, state, or local health and safety regulations.

1.2.2 Contractor Responsibilities

Contractor will provide a copy of this HSP to each site subcontractor in order to fulfill its obligation under 29 CFR 1910.120(b) (15) to inform subcontractors of site hazards. Each

subcontractor shall provide a HSP for its employees covering any exposure to hazardous materials and shall complete all work in accordance with that plan. The subcontractor shall hold contractor harmless from, and indemnify it against all liability in the case of any injury. Contractor reserves the right to review and approve the subcontractor's plan at any time.

Subcontractors are responsible for supervising their employees and maintaining safe working conditions at the work site. Contractor, through its PM or SSO, reserves the right to suspend the subcontractor's site work and ask the subcontractor's personnel to evacuate the hazard area in the event of grossly inadequate health and safety precautions on the part of the subcontractor or the belief that the subcontractor's personnel are, or may be, exposed to an immediate health hazard.

Employees of subcontractors must have completed appropriate site safety training and medical evaluation prior to conducting work involving possible exposure to hazardous materials. It is the subcontractor's responsibility to provide the required level of training and medical evaluations to their employees.

Subcontractors are responsible for obtaining, maintaining, and properly utilizing their own safety equipment in accordance with their health and safety plan requirements. This includes personal protective equipment (PPE) such as respirators, disposable clothing, hard hats or other equipment detailed in the HSP. Subcontractors are responsible for performing respirator fit tests.

1.3 SITE DESCRIPTION AND LOCATION

The sites to be addressed at the 142nd FG include:

- IRP Site No. 1 - Central Hazardous Waste Storage Area;
- IRP Site No. 2 - Civil Engineering Hazardous Material Storage Area;
- IRP Site No. 3 - Hush House Area;
- IRP Site No. 4 - Main Drainage Ditch;
- IRP Site No. 5 - AGE Maintenance Shop;
- IRP Site No. 7 - Burn Pit Area
- IRP Site No. 8 - Sanitary Landfill;
- IRP Site No. 9 - Petroleum, Oil, and Lubricants (POL) Facility;
- IRP Site No. 10 - Equipment Washrack; and
- IRP Site No. 11 - Washrack West of Building 250.

The Base background soil and groundwater will also be investigated during the RI field activities.

1.4 SCOPE OF WORK

This field effort involves a remedial investigation of eleven sites at the 142nd FG. Monitoring wells will be installed for groundwater sampling, and soil and sediment, and surface water samples will be collected at some of the sites. Groundwater, surface water, sediments and soil samples will be analyzed to determine the nature and extent of contamination.

1.5 HEALTH AND SAFETY PLANNING

Skin contact with potentially contaminated soil or water will be minimized by wearing PPE. Inhalation of vapors during soil sampling will be minimized by air monitoring, engineering controls, and the use of respiratory protection if action levels are exceeded. Ingestion of contaminated materials will be minimized by the prohibition on eating, drinking, smoking, or applying cosmetics in the exclusion or contamination reduction zones, and by good personal hygiene during decontamination (i.e., thoroughly washing face and hands with soap and water).

A photoionization detector (PID) (with a 11.4 ultraviolet (UV) tube)/flame ionization detector (FID) instrument capable of detecting total volatile organic and chlorinated organic vapors will be used to monitor for organic and chlorinated organic vapors. The monitor will be used on a continuous basis, typically every five to ten minutes, to monitor in the immediate vicinity of the investigative operations.

If readings exceed an average of 5 parts per million (ppm) above background levels for more than five to ten minutes, under the SSO's direction, monitoring for benzene, carbon tetrachloride, toluene, xylene, or other compounds, and total volatile organic vapors in the breathing zone of the person working nearest the site, will start immediately. If the breathing zone readings indicate the benzene concentration is above 1 ppm, and/or the PID reading is above 100 ppm, personnel will don level C protective equipment. If PID readings exceed 500 ppm or 10 ppm benzene concentration is exceeded, all work will stop and personnel will evacuate. If readings reach action levels, the SSO will require appropriate PPE.

Table A.1.1 provides a list of chemicals which may be encountered at the site.

1.6 RESPONSIBILITIES

Contractor and all subcontractors involved in site activities are required to ensure that on-site employees, visitors, and their suppliers/vendors comply with the minimum standards set forth by the Occupational Safety and Health Administration (OSHA), with contractor's or the

Table A.1.1
Known/Suspected Chemicals of Concern
Oregon Air National Guard
Portland International Airport, Portland, Oregon

Chemicals	OSHA PELS C, ACGIH Levels, PPM	Physical Description	Health Effects (MSDS Remarks)	Physical Properties
Benzene	1 (50 = C,10 min.)	Colorless, aromatic odor	Irritate eyes, nose respiratory tract, nausea, carcinogen.	FP = 12°F UEL = 7.1% VP = 75mm LEL = 1.3%
1,1,1- TCE (Organic Solvent)	350 (IDLH - 1,000)	Colorless liquid with a mild chloroform-like odor	irritates eyes, skin, respiratory system; causes dizziness and liver damage	FP=? UEL=10.5% VP=58mm LEL=8%
1,2 - DCE (Organic Solvent)	200 (IDLH - 1,000)	Colorless liquid with a chlorinated solvent-like color	irritates nose, throat; causes vomiting and liver damage	FP=39°F UEL=12.8% VP=180-265mm LEL=5.6%
Toluene	50 (C=300, 500/10 min) (STEL - 150)	Colorless with aromatic odor	Dizziness, headache, confusion, weakness, fatigue	FP = 40°F UEL = 1.3% VP = 22mm LEL = 1.3%
Xylene	100 (200 = C, 10 min) (IDLH - 1,000)	Colorless with aromatic odor	Dizziness, excitement, drowsiness, irritate eyes, mucous membrane, headache	Varies with isomers (FP=81-90°F) FP = 59°F UEL = 6.7% VP = 7.1mm LEL = 1.0%
Methylene chloride	50 (IDLH - 2,500)	Colorless liquid	Irritation to eyes, skin, carcinogen. Physical weakness.	FP=-139°F VP = 350 mm UEL = 23% LEL = 13%
PCBs (Aroctor® 1254)	(OSHA - 0.5 mg/m^3) (IDLH - 5mg/m^3)	Colorless viscous liquid with a mild, hydrocarbon odor	Irritant to eyes and skin, carcinogen; liver damage	(VP - 0.001 mm) (FP - 50°F) (LEL & UEL - N/A)
Acetone	(OSHA PEL - 750 ppm) (IDLH - 2,500 ppm)	Colorless liquid w/ a fragrant mint-like odor	Irritant to eyes, nose, throat. Headaches, dizziness, CNS depressant	VP = 180mm FP = -140°F UEL = 12.8% LEL = 2.5%
Ethylbenzene	100 (IDLH = 2000)	Colorless, aromatic odor	Irritation, skin sensitization	FP = 84°F UEL = 7.1% VP = 8.8mm LEL = 1.3%

Table A.1.1 (Concluded)
Known/Suspected Chemicals of Concern
Oregon Air National Guard
Portland International Airport, Portland, Oregon

Chemicals	OSHA PELS C, ACGIH Levels, PPM	Physical Description	Health Effects (MSDS Remarks)	Physical Properties
Cadmium (Metal)	OSHA = 0.005 mg/m^3 IDLH = 50 mg/m^3	Silver-white, blue tinted, lustrous, odorless solid	Pulmonary edema, cough, tight chest, chills, headache, muscle aches, nausea, mild anemia;	vp - 0mm; mp - 610°F, UEL & LEL - N/A
Chromium (Metal)	OSHA = 1 mg/m^3 IDLH = 25 mg/m^3	Blue - white to steel gray, lustrous, brittle, hard, odorless solid	irritant to eyes, skin, and lungs;	vp - 0 mm; mp - 345.2°F, LEL&UEL - N/A
Lead (Metal)	OSHA - 0.050 mg/m^3 IDLH - 100 mg/m^3	Heavy, ductile, soft, gray solid	Irritates eyes, gastrointestinal tract, CNS, kidneys;	vp - 0mm; mp - 621°F, UEL&LEL - N/A
Nickel (Metal)	OSHA - 1mg/m^3 IDLH - 10 mg/m^3	metal, lustrous, silvery, odorless solid	nasal cavities, lungs, skin, allergic asthma;	vp - 0mm; mp - 283.1°F; UEL&LEL - N/A
Zinc (Metal)	OSHA 5 mg/m^3 IDLH - 500 mg/m^3	White odorless solid	irritant to eyes, skin, nose, throat;	vp - 0mm; mp - 554°F; LEL&UEL - N/A

Notes:
PEL = Permissible Exposure Limit
VP = Vapor Pressure
C = Ceiling Level
mm = millimeters
PCBs = polychlorinated biphenyls
ACGIH = American Confined Governmental Industrial Hygienists
IDLH = level which is immediately dangerous to life and health
TCE = Trichloroethane
UEL = Upper Explosive Limit
MSD = Material Safety Data
CNS = Central Nervous System
ppm = parts per million
DCE = Dichloroethene
LEL = Lower Explosive Limit
°F = Degrees Fahrenheit
min = minutes
mg/m^3 = milligram/cubic meters
OSHA = Occupational Safety and Health Administration
FP = Flash Point
BP = Boiling Point
MP = melting point
STEL = Short term exposure limit
N/A = Not applicable

subcontractor's project HSP, and with applicable regulations issued by governmental entities. Contractor and subcontractors are required to know and comply with the safety regulations which apply to their operations.

1.7 PROJECT TEAM ORGANIZATION/KEY PERSONNEL

The project team will include a PM, Field Team Leader (FTL), SSO, and a field team involved in on-site investigations and operations. The following subsections describe their roles and responsibilities.

1.7.1 Project Manager

The PM shall direct on-site investigations and operational efforts. The PM may delegate all or part of these duties to the Field Team Leader. At the site, the PM, assisted by the SSO, has primary responsibility for:

- Ensuring that appropriate PPE and monitoring equipment are available and properly utilized by all on-site personnel;
- Establishing that personnel are aware of the provisions of this plan, are instructed in the work practices necessary to ensure safety, and are familiar with planned procedures for dealing with emergencies;
- Establishing that all field personnel have a minimum of 40 hours health and safety training, have appropriate medical clearances, and have been fit tested for the appropriate respirators;
- Ensuring that personnel are aware of the potential hazards associated with site operations;
- Monitoring the safety performance of all personnel to ensure that the required work safety practices are employed;
- Correcting any work practices or conditions that may result in injury or exposure to hazardous substances;

- Ensuring the completion of Safety Plan Acceptance Agreement forms by contractor's and subcontractor's personnel;

- Halting site operations, if necessary, in the event of an emergency or to correct unsafe work practices; and

- Reviewing and approving the project HSP.

1.7.2 Field Team Leader

The FTL shall assume all responsibilities of the PM when the PM is not on-site. In addition, the FTL will be responsible for:

- Acting as on-site liaison with the 142nd FG, Environmental Management personnel and regulatory agencies;

- Ensuring that all notifications to the state regulatory agencies, fire Marshall, and other agencies have been made;

- Confirming that all underground utilities have been located prior to drilling;

- Ensuring that all work is performed in accordance with regulations and industry standards; and

- Keeping detailed record of all site activities in a project logbook.

1.7.3 Site Safety Officer (SSO)

The SSO duties may be carried out by the PM or FTL. However, for the 142nd FG project, a full-time dedicated SSO will be in place. The SSO shall:

- Implement the project HSP and report any deviations from the anticipated conditions described in the plan to the PM;

- Determine that monitoring equipment is used properly and is calibrated in accordance with manufacturer instructions or other standards, and that results are properly recorded and filed;

- Verify with the contractor CHSM and Subcontractor's Safety Representative (SSR) that assigned personnel have health and safety training, fit-for-duty medical and training authorizations;

- Assume any other duties as directed by the PM;

- Be responsible for identifying site personnel with special medical problems (e.g., allergies, personnel on medication) in order to determine fitness for work;

- Be responsible for conducting daily safety meetings and completing the Site Safety Briefing Report;

- Provide ongoing review of the protection level needed as project work is performed, and inform the PM of the need to upgrade/downgrade protection levels as appropriate;

- Conduct daily "tailgate" safety briefing for all site personnel.

- Be responsible for monitoring and recording results of exposure evaluations;

- Halt site operations, if necessary, in the event of an emergency or to correct unsafe work practices;

- Prepare accident/incident reports; and

- Review and approve the project HSP.

1.7.4 Field Team

Project personnel involved in on-site investigations and operations are responsible for:

- Taking all reasonable precautions to prevent injury to themselves and to their fellow employees;

- Performing only those tasks that they believe they can do safely, and immediately reporting any accidents and/or unsafe conditions to the SSO or PM;

- Implementing the procedures set forth in the HSP, and reporting any deviations from the procedures described in the plan to the SSO or PM for action;

- Notifying the PM and SSO of any special medical problems (e.g., allergies) and insuring that all on-site personnel are aware of any such problems; and

- Reviewing the project HSP and signing the Safety Plan Acceptance Agreement Form.

1.8 SUBCONTRACTOR SAFETY REPRESENTATIVE

Each subcontractor is required to designate an SSR. The SSR is responsible for the safe and healthful performance of work by his work force and subcontractors. During the subcontractor activities on-site, the SSR will perform continuing work area inspections, and conduct safety meetings and safety orientations for all new employees. The SSR and all other personnel on site will attend mandatory daily "tailgate" periodic safety meetings. The SSR will also investigate accidents and overexposures involving subcontractor personnel.

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SECTION 2.0 SAFETY AND HEALTH RISK ANALYSIS

2.1 CHEMICAL HAZARDS

A number of materials containing hazardous chemicals may be encountered at the site. These known/suspected chemicals were previously identified in Table A.1.1. Detailed information on the nature of the hazards presented by these chemicals is found on the Material Safety Data Sheets (MSDS). Compounds in concentrations that exceed health exposure standards may be present in the soil and groundwater. Primary routes of exposure for these chemicals are inhalation, skin absorption, and eye contact. Symptoms of exposure can range from none to irritation of the eyes, nose, and respiratory system; headache; staggered gait; fatigue; and dermatitis. Permissible exposure limits and other properties of compounds which may be encountered are shown in Table A.1.1.

Overviews of the hazards associated with exposure to the chemicals found on-site to date are presented below in terms of:

PEL	Permissible Exposure Limit
C	Ceiling
TLV	Threshold Limit Value (American Conference of Governmental Industrial Hygienists (ACGIH) Guidance)
TLV-STEL	Threshold Limit Value - Short Term Exposure Limit (ACGIH, Guidance)
LEL	Lower Explosive Limit

OSHA PELs, ACGIH TLVs, and TWAs are defined as concentrations for an 8-hour work day, 40-hour work week to which almost all workers can be repeatedly exposed without suffering adverse health effects.

A ceiling (C) value is a concentration that should not be exceeded at any time in any work day.

STEL is defined as the concentration to which workers can be exposed for short time periods without irritation, tissue damage, or narcosis sufficient to cause impairment of self-rescue or precipitate accidental injury. It is a 15-minute TWA that should not be exceeded at any time during the work day.

LEL is defined as the minimum concentration of vapor in air below which propagation of a flame will not occur in the presence of an ignition source.

The following potential exposures may exist at the site:

- Skin contact with contaminated soil or water;
- Inhalation of vapors; and
- Ingestion of contaminated soil dusts, especially if poor personal hygiene is practiced.

Skin contact with potentially contaminated soil or water will be minimized by wearing personal protective equipment (as described in Section 3.8 of the HASP). Inhalation of vapors during excavation or soil and groundwater sampling will be minimized by air monitoring, engineering controls, and the use of respiratory protection if action levels are exceeded. In order to prevent ingestion of contaminants, proper decontamination and personal hygiene are required. Eating, drinking, chewing tobacco or gum, smoking, or applying cosmetics is prohibited.

2.2 PHYSICAL HAZARDS

2.2.1 Construction Hazards

Employees must implement safe work practices in accordance with OSHA regulations while working on-site. In addition to the hazardous substances and environments present on-site, other physical hazards may exist, including risk of injury while working in or around heavy equipment. Work areas will be barricaded to protect both public and operational personnel.

2.2.2 Heavy Equipment

Operation of heavy equipment, such as drilling rigs and the GeoProbe™, presents potential physical hazards to personnel. PPE such as steel-toed shoes, safety glasses or goggles, and hard hats must be worn whenever such equipment is present. Personnel should at all times be aware of the location and operation of heavy equipment, and take precautions to avoid getting in the way of their operation.

2.2.3 Noise Hazards

The primary noise hazard at the site will be noise from operating heavy equipment. All personnel are required to have ear protection (either muffs or plugs) when conducting field activities, and ear protection will be worn within 25 feet of operating equipment. An exclusion zone surrounding the operating equipment will be roped off to prevent access to any unauthorized personnel. The FTL and SSO will determine and enforce any other noise protection requirements deemed appropriate. All contractor and sub-contractor field personnel will have undergone an annual medical examination which included an audiogram conducted by a licensed occupational health physician in accordance with 29 CFR 1910.95, Hearing Conservation.

2.2.4 Fire/Explosion

Field activities could cause sparking. Flammable liquids are present in the form of diesel and gasoline for operation of equipment, and potentially petroleum wastes and solvents. A PID, oxygen $(O)_2$ meter, and an combustible gas indicator (CGI) should be used to monitor the work area atmosphere, as determined by the PM and SSO.

2.2.5 Heat Stress

Heat stress may be of concern, depending on ambient temperature, work load, PPE, and radiant heat. Working in PPE can greatly increase the likelihood of heat fatigue, heat exhaustion, and heat stroke; the latter being a life-threatening condition. Work/rest schedules will be implemented within the guidelines of the American Conference of Governmental Industrial Hygienists, Wet Bulb Globe Temperature (WBGT) TLVs. The SSO will be responsible for briefing workers on the signs of heat stress when weather conditions require it. This should be done during the daily tailgate meeting. The SSO is responsible for stopping work should ambient temperature conditions warrant.

2.2.6 Prevention of Heat Stress

Proper training and preventive measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is particularly important because, once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat-related illness. The "buddy system" should be utilized to watch for signs of heat stress. To avoid heat stress, the following steps should be taken:

- Adjust work schedules.
- Modify work and rest schedules according to monitoring requirements.
- Mandate work slowdowns as needed.
- Provide shelter or shaded areas to protect personnel during rest periods.
- Maintain worker body fluids at normal levels. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, encourage the worker to drink fluids frequently.

2.2.7 Heat Exhaustion

Heat exhaustion occurs from increased stress on various body organs, including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Symptoms of heat exhaustion include extreme fatigue, cramps, dizziness, headache, nausea, profuse sweating; pale, cool moist skin; core body temperature > 100.4° Fahrenheit (°F) (38° Celsius (°C)). Treatment of heat exhaustion requires immediately removal of the victim from the work area. Allow victim to rest, cool off, and drink plenty of cool water. If the symptoms do not subside after a reasonable rest period, employees shall notify the SSO and seek medical assistance.

2.2.8 Heat Stroke

Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury or death occurs. Symptoms of heat stroke include body temperatures between 105-107° F. Initial symptoms often include red, hot, dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma. Unconsciousness follows quickly and death is imminent if exposure continues. The attack will usually occur suddenly. It is imperative that competent medical help be obtained ***immediately.***

2.2.9 Cold-Related Illness

In the winter months, thermal injury due to cold exposure can become a problem for field personnel. Systemic cold exposure is referred to as hypothermia, while local cold exposure is generally labeled frostbite.

- Hypothermia is defined as a decrease in the patient core temperature below 96°F. Symptoms of hypothermia include shivering, apathy, listlessness, sleepiness, and unconsciousness.

- Frostbite is both a general and medical term given to areas of local cold injury. Unlike systemic hypothermia, frostbite rarely occurs unless the ambient temperatures are less than freezing and usually less than 20°F. Frostbite produces a sudden blanching or whitening of the skin; the skin has a waxy or white appearance and is firm to the touch; tissues are cold, pale, and solid.

2.2.10 Prevention of Cold-Related Illnesses

- Educate workers to recognize the symptoms of frost-bite and hypothermia;
- Identify and limit known risk factors
  - •• Prohibit the use of phenothiazine (a sedative)
  - •• Identify/warn/limit use of beta blockers on back
- Assure the availability of enclosed, heated environment on or adjacent to the site
- Develop capability for temperature recording at the site

2.3 BIOLOGICAL HAZARDS

2.3.1 Ticks and Lyme Disease

Lyme Disease is most prevalent in the eastern United States. Deer ticks are believed to be the main carrier of the disease. Deer ticks have been found on and spread by deer, household pets, birds, and other warm-blooded animals. Lyme disease is associated with bites from deer ticks.

Authorities believe the ticks have to be attached for many hours to transmit the infection. At the end of the day, do a self examination for ticks. Ticks range from pinpoint size to over one-quarter of an inch in diameter. Ticks have a flat body, unless gorged with blood, and have an appearance

which resembles a miniature crab. If found, ticks should be pulled off using tweezers. Removal should be performed by firmly grasping the tick with tweezers and pulling carefully and steadily. The infecting organism is located in the midgut of the tick so authorities say that it is not cause for alarm if some of the head remains under the skin.

Lyme disease causes fever, headaches, fatigue, and pain or stiffness in muscles and joints. If untreated, it can also bring lifelong impairment of the muscular or nervous systems including chronic arthritis or brain injury. About 10% of the people develop crippling arthritis. There are three stages of Lyme disease, but any one can occur without the preceding one(s).

- Stage 1: Flu-like symptoms accompanied by a skin rash with a bright red border. Symptoms go away after a few days to a few weeks. There is a strong chance that the symptoms will reoccur later. Treatment: Antibiotics to destroy the infection.

- Stage 2: Weeks or months after the bite, symptoms marked by irritability, stiff neck, and difficulty concentrating. These symptoms are signs of nervous system damage which could lead to meningitis. Pain in the elbow and/or knees sometimes occurs; the pain may alternate between the joints.

- Stage 3: Chronic problems including arthritis, numbness, tingling or burning sensations. The symptoms can occur on the trunk of the body, the extremities, or the brain. The more serious nervous system damage is believed to be uncommon.

Prevention of Lyme disease consists of repelling ticks and of preventing tick bites. The only recognized repellent is N,N-diethyl-m-toluamide (DEET). DEET is generally considered to be safe and is used in a variety of over-the-counter insect and tick repellents. The brand of insect repellant called "OFF' uses carrier solvents which will not interfere with volatile organic analysis scans at the site. DEET should be applied to exposed skin and to disposable coveralls worn over street clothes. Additionally, long pants should be worn and the pant legs tucked into the socks to make it difficult for ticks to reach the skin.

There are reports of uncommon side effects from DEET which include one or more of the following symptoms: skin irritation, slurred speech, confusion, and seizures. In the event that any of the above symptoms occur, DEET should be promptly removed with soap and water. If

symptoms persist, seek medical attention. In any case, DEET should be washed off at the end of the work day to minimize potential for skin irritation or other side effects.

2.3.2 Poisonous Plants

Poison ivy and poison oak may be present at the site. Personnel should avoid contact.

2.3.3 Animals

It is possible that poisonous snakes could occur in the 142nd FIG area. Personnel entering overgrown areas should wear snake chaps or gaiters.

Insects such as bees and wasps may be found on-site. Personnel who may have allergic reactions should keep their personal first aid kit on-site.

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SECTION 3.0 PERSONNEL PROTECTION AND MONITORING

3.1 MEDICAL SURVEILLANCE

All personnel on the site will have successfully completed a preplacement or periodic/update physical examination within the last 12 months. This examination will comply with 29 CFR 1910.120 medical requirements for hazardous waste site workers. Documentation of this examination for all site personnel will be maintained by the SSO.

The suggested medical surveillance program examination may consist of:

- Medical and occupational history form;
- Physical examination;
- Selected biological sampling;
- Complete blood count (CBC) with differential;
- Urinalysis;
- Chemistry panel (SMAC);
- Chest X-ray;
- Pulmonary function test (forced expiratory volume/forced vital capacity);
- Audiogram;
- Electrocardiogram;
- Visual acuity; and
- Ability to wear respirator.

The following information must be provided to the examining physician:

- Description of the employee's duties;
- Anticipated exposure types and levels; and
- Information from previous medical exams.

All workers who have potential for exposure to hazardous materials shall have successfully completed an examination similar to the preplacement physical. All examinations should be approved by a physician who is Board Qualified in Occupational Medicine by the American Board of Preventive Medicine/Occupational Medicine. The physician shall provide to the employer written certification of site personnel as fit for duty per 29 CFR 1910.120.

3.1.1 Requirement for Contractor Personnel

Contractor employs the services of a licensed occupational health physician with knowledge and experience in the hazards associated with the project to provide the medical examinations and surveillance herein.

Personnel involved in this project shall have undergone regular medical examinations at 12-month intervals. The medical exam is performed under the direction of a licensed occupational health physician. A medical evaluation of fitness or unfitness of an individual for employment on hazardous waste projects, or any restriction on that person's utilization that may be indicated, is provided by the physician.

3.1.2 Requirement for Subcontractors

Subcontractors shall be responsible for medical surveillance of their employees and providing documentation to contractor's SSO.

3.2 TRAINING REQUIREMENTS

3.2.1 Introductory And Refresher Training

In compliance with Code of Federal Regulations (CFR) 29 CFR 1910.120(e), site workers will have taken the required 40 hour Hazardous Waste Operations and Emergency Response course before working on this project. If 1 year or more has elapsed since successful completion of the 40 hour course, workers must have completed the 8-hr annual update training required of hazardous waste site personnel. Workers will also have had 3 days of actual field experience on a hazardous waste site under the supervision of a trained, experienced supervisor before beginning work. Any workers who will be exposed to unique or special hazards will be provided with additional training relevant to these hazards.

Supervisory personnel will have met the same basic training and experience requirements as other site workers. In addition, they will have received 8 hours of training in management of hazardous waste site operations.

All on-site supervisors and workers will be enrolled in a medical surveillance program. Enrollment in a medical surveillance program is required by 29 CFR 1910.120(f).

3.2.2 Site-Specific Training

The SSO will be responsible for developing a site-specific occupational hazard training program and providing training to all contractor personnel who are to work at the facility. This training will consist of the following topics:

- Names of personnel responsible for site safety and health;
- Safety, health, and hazards at the site;
- Proper use of PPE;
- Work practices by which the employee can minimize risk from hazards;
- Safe use of engineering controls and equipment on the site;
- Acute effects of contaminants at the site; and
- Decontamination procedures.

3.2.3 Daily Briefing Sessions

The SSO will conduct brief (5- to 10-min) on-site briefing sessions at the beginning of each workday. These "tailgate" meetings will focus on tasks scheduled for that day and health and safety issues pertinent to those tasks. All briefings, job-specific safety topics, and personnel attendance lists shall be documented in the field notebook.

3.2.4 Requirements For Subcontractors

Subcontractors are responsible for providing required training to their employees. Documentation and certification must be provided to contractor's SSO.

3.3 PERSONAL PROTECTIVE EQUIPMENT AND ACTION LEVELS

Level D protection will be worn for initial entry on site and initially for all activities. Level D protection consists of:

- Standard work clothes. Tyvek coveralls are optional if there is a possibility of contact with contaminated soils;
- Safety glasses;
- Steel-Toe Safety boots;
- Nitrile, latex, or vinyl gloves - mandatory during all sampling activities; and
- Hard Hat.

Level C protection will be worn in the event activities *must* be performed in the presence of organic vapors in excess of 100 ppm. Level C protection consists of all level D equipment, plus negative-pressure respirators equipped with organic vapor cartridges. Organic vapors in excess of 500 ppm or benzene concentrations in excess of 10 ppm will require evacuation of work area.

3.4 MONITORING REQUIREMENTS

3.4.1 Routine Monitoring for Organic Vapors

Benzene has the lowest PEL - 1 ppm - of all of the suspected contaminants on site. Specific monitoring for airborne benzene will be performed daily during field activities using Draeger tubes with pretubes. In the event benzene is detected at or in excess of 1 ppm, work at the site will be suspended. Should these levels dissipate, work will continue; if the levels persist, ventilation of the area by fans will be evaluated.

Negative-pressure respirators equipped with organic vapor cartridges will be kept on hand for emergency purposes. In the event that benzene levels are between 1 ppm and 10 ppm, or total organic vapors exceed 100 ppm and levels do not dissipate, emergency activities will be performed in Level C protection until fans are brought on site.

Monitoring for organic vapors in the breathing zone will be conducted with organic vapor detection equipment. Readings will be taken under the following circumstances:

- Upon initial entry onto the site;
- When weather conditions change;
- While work is in progress on the site; and
- When work begins on another portion of the site.

3.4.2 Routine Monitoring for Explosive Environment

Air monitoring will be conducted for combustible gases and vapors. A combustible gas indicator is the instrument of choice in determining the concentration of flammable vapor in the air. Guidelines have been established by the National Institute for Occupational Safety and Health (NIOSH) concerning the action levels to be utilized when working in a potentially explosive environment. A combustible gas indicator/O_2 meter will be used to monitor ambient conditions at all times during drilling operations. Oxygen concentrations should be measured prior to taking combustible readings to determine if there is sufficient oxygen (10%) to operate the combustible gas indicator.

The combustible gas indicator is intended for use only in normal atmospheres, not those that are oxygen enriched or deficient. Oxygen concentrations that are less than or greater than normal may cause erroneous readings.

All monitoring equipment used during these studies must be certified for operation in a class I atmosphere. A class I atmosphere consists of flammable vapors and gases, such as gasoline and hydrogen. The instrument's instruction manual contains information on the use of the instrument in an explosive atmosphere.

NIOSH guidelines on the use of the combustible gas indicator:

LEL Reading	Action
< 10% LEL	Continue operations
10% - 20% LEL	Increase Monitoring Frequency
> 20% LEL	Shut down operations and evaluate source, ventilate.

When readings exceed 20 percent LEL on the indicator, *all activities must cease* to allow time for the combustible gases to dissipate.

3.4.3 Oxygen Monitoring

NIOSH requires the use of self-contained breathing apparatus when oxygen concentrations fall below 19.5 percent. This condition is not likely be encountered, since there should be no activities performed in confined work spaces. However, should the situation change, an oxygen indicator should be used to monitor the atmosphere oxygen concentration during site activities. Prior to entering an excavation or tank, an oxygen meter will be used to test for adequate oxygen levels. Decisions will be based on oxygen concentrations as followed:

OXYGEN Concentration	Action
20.8%	Continue operations
< 20.8%, but > 19.5%	Continuous Monitoring of O_2 Concentrations
< 19.5%	Do not enter, ventilate, and determine if supplied air is required

3.4.4 Monitoring for Heat Stress

Monitoring of personnel wearing personal protective clothing should commence when the ambient temperature is 70°F or above. Monitoring frequency should increase as the ambient temperature increases or as slow recovery rates are observed. Heat stress monitoring will be performed by a person with a current first aid certification who is trained to recognize heat stress symptoms. Heat stress of employees on site will be monitored by the WBGT index technique. This method requires the use of a heat stress monitoring device, such as the Reuter-Stoked Wibget Heat Stress Monitor. Heat stress of employees on site will be monitored by the SSO.

Note: Three to five degrees C must be subtracted from the WBGT TLV when wearing impermeable protective clothing. Once the initial work/rest regimen has been established, physiological monitoring (heart rate) may be conducted by the SSO to adjust the work/rest regimen. The SSO will make the appropriate adjustments.

To monitor the worker, one of the following methods may be used:

- Heart rate: Count the radial pulse during a 30-second period as early as possible in the rest period. If the rate exceeds 100 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same. If the heart rate still exceeds 100 beats per minute at the next rest period, shorten the following work cycle by one-third.

- Oral temperature: Use a clinical thermometer (3 minutes under the tongue) or similar device to measure the oral temperature at the end of the work period (before drinking).

- If oral temperature exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third without changing the rest period.

- If oral temperature still exceeds 99.6°F (37.6°C) at the beginning of the next rest period, shorten the following cycle by one-third.

- Do *not* permit a worker to wear a semipermeable or impermeable garment when oral temperature exceeds 100.6°F (38.1°C).

Suggested frequency of physiological monitoring of workers is shown on Table A3.1.

Table A3.1 Suggested Frequency of Physiological Monitoring for Workers[1,2]

Adjusted Temperature[3]	Normal Work Ensemble[4]	Impermeable Ensemble
87.5°-90°F (30.8°-32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5°-87.5°F (28.1°-30.8°C)		After each 60 minutes of work
77.5°-82.5°F (25.3°-28.1°C)		After each 90 minutes of work
72.5°-77.5°F (22.5°-25.3°C)		After each 120 minutes of work

1 Source: *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*. (NIOSH 1985)

2 For work levels of 250 kilocalories/hour.

3 Calculate the adjusted air temperature (ta adj) by using this equation: ta adj°F = ta°F + (0.13 x % sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent of the time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

4 A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

3.4.5 Monitoring for Cold-Related Illness

Start oral temperature recording at job site:

- At the FTL's discretion when worker's performances or mental status changes in a manner which may indicate cold-related illness.
- At worker's request.
- As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind chill less than 20°F, or wind chill less than 30°F with precipitation).
- As a screening measure whenever any one worker on the site develops hypothermia.

Any person developing moderate hypothermia (a core temperature of 92°F) cannot return to work for 48 hours.

3.5 BACKGROUND READINGS

All direct-reading instrument readings will be evaluated relative to background readings, not "zero". Prior to the start of work at each shift, and whenever there is a significant shift in wind direction, instrument readings will be obtained upwind of the site operating zone in order to determine the level of "background" readings from local vehicle traffic, emissions from nearby operations unrelated to the site, etc. Site readings will be evaluated against these background readings.

3.6 DATA LOGGING

All exposure monitoring data, background readings, and daily instrument calibrations will be logged in the field log book. All monitoring instruments will be calibrated, in accordance with the manufacturer's instructions prior to the start of each shift and when inconsistent or erratic readings are obtained. If an instrument cannot be calibrated to specification, or becomes otherwise inoperable, all site work will cease until the instrument is appropriately repaired or replaced.

3.7 DUST CONTROL

If drilling operations generate a sustained visible dust cloud, a water mist will be applied to reduce dust generation. If the mist is not effective in reducing dust generation, personnel will don respirators (half-face or full-face as appropriate for analyzer readings) with combination organic vapor - high efficiency particulate air (HEPA) filter cartridges (such as Mine Safety Appliance's GMC-H cartridges).

3.8 PERSONAL PROTECTIVE EQUIPMENT

Minimum Protective Equipment for Site Personnel:

- Hardhat
- Safety glasses
- Steel-toed boots

Work/Exclusion Zone Requirements:

- Hardhat
- Eye protection (face shield or safety glasses)
- Chemical-resistant steel-toed boots
- Ear protection in vicinity of heavy equipment
- Work gloves
- Coveralls

These are standard for hazardous material contact:

- Tyvek coveralls or only needed if contact is possible
- Nitrile gloves
- Surgical latex or vinyl gloves

If analyzer reading greater than 100 ppm in breathing zone, add:

- Half-face respirator with organic vapor cartridges

If analyzer reading greater than 500 ppm in breathing zone, add:

- Full-face respirator with organic vapor cartridges

If potential for liquid contact exists:

- Use poly-coated Tyvek coveralls in place of uncoated Tyvek

SECTION 4.0 SITE CONTROL MEASURES, ACCIDENT PREVENTION, AND CONTINGENCY PLAN

4.1 SITE CONTROL MEASURES

The site control measures discussed in this section will be followed to minimize potential contamination of workers, protect the public from potential site hazards, and to control access to the sites. Site control involves the physical arrangement and control of the operation zones and the methods for removing contaminants from workers and equipment. Site organization is discussed in this section.

Barricades and barricade tape should be used to delineate an exclusion zone around the drilling area. The barriers should be set in a 25-foot radius (as practical) around the work area. A short piece of barricade tape can be affixed to an equipment cab to serve as a wind-direction tell-tale. A five-foot opening in the barricades at the support zone (upwind of the equipment) will serve as the personnel and equipment entry and exit point. The personnel decontamination station will be established at this point. All entry to and exit from the drilling work area will be made at this opening in order to control potential sources of contamination (i.e., leave contaminated soil and debris in the exclusion area).

At the end of the shift, the site must be barricaded or otherwise secured. All soils are to be placed on plastic and covered. All decontamination fluids are to be drummed, and the drums shall be properly marked and labeled in accordance with applicable Department of Transportation (DOT) regulations (49 CFR 172).

The PM or SSO will determine an upwind evacuation area prior to each shift, and all personnel will be notified of its location. A compressed gas horn will be used to signal an evacuation in the event of an emergency. Three blasts of the horn will be the signal to immediately stop work and proceed to the evacuation area.

The SSO will ensure that all site visitors are logged in the project log book and that all personnel who enter the work zone do so only with permission of the SSO and after a field briefing of the current activities and potential site hazards.

4.2 SITE ORGANIZATION-OPERATION ZONE

Any time respirators are worn, the following operation zones will be established on the site or around the tanks.

- Exclusion zone (contamination zone)
- Contamination reduction zone
- Support zone

If the field crew members are wearing protective clothing such as gloves or Tyvek suits but are not wearing respirators (level D modified), the field crew will establish a decontamination area to avoid spreading contaminants off site. The FTL and/or SSO is responsible for establishing the size and distance between zones at the site or around the site feature.

4.3 WORK ZONES

4.3.1 Exclusion Zone (Contamination Zone)

The exclusion zone constitutes the place where active investigation or cleanup operations take place. Within the exclusion zone, prescribed levels of protection must be worn by all personnel. The hotline, or exclusion zone boundary, is initially established based on the presence of actual wastes or apparent spilled material, or through air monitoring. The hotline is placed around all physical indicators of hazardous substances (drums, tanks, ponds, liquid runoff, defoliated areas). The hotline may be readjusted based on subsequent observations and measurements. The boundary should be physically secure and posted or well defined by physical and geographic limits.

- Exclusion zone - A 25-foot (as practical) circle around the site will be defined before work starts. The encircled area will constitute the "Exclusion Zone". This zone is where potentially hazardous contaminants and physical hazards to the workers will be contained. Full personal protection may be required in this area. Plastic sheeting (visqueen) and/or tarps will be used to control cuttings or spoils spilled, or placed on the ground during drilling operations. The size of the Exclusion Zone may be altered to accommodate site conditions and to ensure contaminant containment.

Under some circumstances, the exclusion zone may be subdivided into zones based on environmental measurements of expected onsite work conditions.

4.3.2 Contamination Reduction Zone

Between the exclusion zone and the support zone is the contamination reduction zone. This zone serves to prevent or reduce the transfer of hazardous materials which may have been picked up by personnel or equipment leaving the exclusion zone.

- Contamination Reduction Zone (CRZ) - A corridor leading from the Exclusion Zone will be defined, and will lead from the work area to a break area. All decontamination activities will occur in this area. A waste container will be placed at the end of the corridor so contaminated disposal equipment can be placed inside and covered. Surface/soil contamination in this area should be controlled using plastic sheeting. CRZ or Exclusion Zone entry requires permission from the SM or SSO.

4.3.3 Support Zone

The support zone is the outermost area of the site and is considered a noncontaminated or clean area. The support zone contains the command post for field operations, first aid stations, and other investigation and cleanup support. Normal work clothes are appropriate apparel within this zone; potentially contaminated personnel clothing, equipment, etc., are not permitted.

- Support Zone - a Support Zone, the outermost part of the site, must be defined for each field activity. Support equipment is located in this uncontaminated or clean area. Normal work clothes are appropriate within this zone. The location of this zone depends on factors such as accessibility, wind direction (upwind of rig), and resources (i.e., roads, shelter, utilities).

4.4 SAFE WORK PRACTICES

To ensure a strong safety awareness program during drilling operations and monitoring well construction, personnel must have adequate training, this HASP must be communicated to the

employees and visitors, and standing orders must be developed and communicated to visitors and employees. Standing orders for personnel entering the exclusion zone are as follows:

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited in the contaminated or potentially contaminated area of where the possibility for the transfer of contamination exists.

- No matches or lighters in zone.

- No personal vehicles are allowed in either the exclusion or contamination reduction zones.

- Check in and check out at access control points.

- The buddy system will be used at all times when performing sampling for hazardous material when the first action level criterion has been exceeded.

- All PPE will be used as specified and required.

- Avoid contact with potentially contaminated substances. Do not walk through puddles, pools, mud, etc. Avoid, whenever possible, kneeling on the ground, leaning or sitting on equipment or ground. Do not place monitoring equipment on potentially contaminated surfaces.

- Discovery of unusual or unexpected conditions will result in immediate evaluation and reassessment of site conditions and health and safety practices.

- Conduct safety briefings prior to onsite work.

- Take precautions to reduce injuries from heavy equipment and other tools.

- All field crew members should make use of their senses to alert them to potentially dangerous situations in which they should not become involved (i.e., presence of strong, irritating or nauseating odors).

- Prevent, to the extent possible, spillages. In the event that a spillage occurs, contain liquid if possible.

- Prevent splashing of the contaminated materials.

- Field crew members shall be familiar with the physical characteristics of investigations, including:

  - Wind direction in relation to contaminated area

  - Accessibility to equipment and vehicles

  - Communications

  - Hot zone (areas of known or suspected contamination)

  - Site access

  - Nearest potable water sources

- The number of personnel and equipment in the contaminated area should be minimized but only to the extent consistent with workforce requirements of safe site operations.

- All wastes generated during Field Activities at the Base will be disposed of as directed by the PM.

The following guidelines will be followed while working on site:

- Heavy equipment: Only qualified operators will be allowed to operate heavy equipment. Subcontractors will be required to use the safe work guidelines included in the OSHA General Industry (29 CFR 1910) and Construction Industry (29 CFR 1926) Standards.

- Trench shoring: Any trenches for human entry will be shored or have the sides laid back in accordance with 29 CFR 1926 subpart P and certified by a Professional Engineer. All trenching and shoring will be inspected daily by the SSO.

- Power lines: When operating heavy equipment, such as drilling rigs near power lines, workers will take care to ensure that the boom or rigging always maintains a safe distance from power lines (20 feet minimum). Any underground utility lines must also be located and appropriate precautions taken before any drilling is done.

- Swing radius: All swing equipment, such as cranes or backhoes, will have the swing radius guarded to prevent workers from being struck by the rotating machinery.

- Electrical equipment: All electrical equipment will be properly grounded and class approved for the location.

- Machine guarding: All machinery on site will be properly guarded to prevent contact with rotating shafts, blades, or gears.

- Flammable materials: When work involves flammable materials, adequate ventilating and control of all ignition sources will be maintained. This may include:

  - Nonsparking tools

  - Explosion proof equipment (intrinsically safe)

  - Class-approved electrical equipment

  - No smoking or open lights

  - No welding

4.5 HEALTH AND SAFETY EQUIPMENT CHECKLIST

The following list included normal health and safety equipment taken to the field:

Hard hats
Safety glasses
Ear plugs or muffs
Tyvek and polycoated Tyvek coveralls
Chemical resistant steel-toed boots
Work gloves
Nitrile gloves
Surgical vinyl, nitrile, or latex inner gloves
Plastic sheeting (visqueen)
55-gal 17-H drums (for contaminated solids) and 17-E drums (for liquids)
Drum liners
Barricade tape and barricades
Wash tubs and scrub brushes
Decon solution
Folding chairs
5- or 10-gal portable eyewash
Respirator sanitizing equipment
First Aid kit
Drinking water
Gatorade or similar drink
Type ABC fire extinguishers
Half-face and full-face respirators (NIOSH/MSHA approved)
Organic vapor cartridges
OVA and calibration kit
Garden sprayer
Compressed gas horn
Duct tape

4.6 ACCIDENT PREVENTION

On a day-to-day basis, all personnel should be constantly alert for indicators of potentially hazardous situations and for signs and symptoms in themselves and others that warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency. Before daily work assignments, regular meetings will be held, with discussion on:

- Tasks to be performed
- Time constraints (e.g., rest breaks, cartridge changes)
- Hazards that may be encountered, including their effects, how to recognize symptoms or monitor them, concentration limits, or other danger signals
- Emergency procedures

4.6.1 Heavy Equipment Operation

Prior to any drilling activity, efforts will be made to determine whether underground installations will be encountered and, if so, where these installations are located. Hard hats and safety boots, at a minimum, must be worn within 50 feet of the drill rig. The drilling rig cannot be operated within 20 feet of power lines. The FTL or SSO will provide constant onsite supervision of the drilling subcontractor to ensure that all health and safety requirements are being met. If deficiencies are noted, work will be stopped and corrective action will be taken (e.g., retrain, purchase additional safety equipment). Reports of health and safety deficiencies and the corrective action taken will be forwarded to the PM.

4.6.2 Sampling Practices

For all sampling activities, the following standard safety procedures shall be employed:

- All sampling equipment should be cleaned before proceeding to the site.
- At the sampling site, sampling equipment should be cleaned after each use.

- Work in "cleaner" areas should be conducted first where practical.

- The minimum number of personnel necessary to achieve the objectives shall be within 25 feet of the drilling, or sampling activity.

- If emergency and backup subcontracted personnel are at the site, they should remain 25 feet from the drilling, or sampling activity, where practical.

- All unauthorized personnel will remain outside EZ and CRZ at all times.

4.7 SITE SECURITY

Site security is necessary to prevent exposure of unauthorized, unprotected individuals in the work area. Because of the increased hazards from equipment and potential exposures, site security will be enforced by the SSO, who will ensure that only authorized personnel are allowed in the work area and that personnel have the required level of PPE.

4.8 COMMUNICATION

The communication network will be set up to alert site personnel of emergencies and to summon outside emergency assistance, and all site personnel will be trained on the use of the network. Where voice communication is not feasible, an alarm system will be set up to alert employees of emergencies. In some cases, radio communications may be used to communicate with personnel in the EZ. If phone service is not readily available, radios, or portable phones will be used to communicate with outside agencies. Emergency phone numbers and the emergency route to the nearest hospital will be posted in a readily available location and all site personnel will be briefed daily on its location.

4.9 CONTINGENCY PLAN

In the event that an emergency develops on site, the procedures delineated herein are to be immediately followed. Emergency conditions are considered to exist if:

- Any member of the field crew is involved in an accident or experiences any adverse effects or symptoms of exposure while on site.

- A condition is discovered that suggests the existence of a situation more hazardous than anticipated.

4.9.1 Chemical Exposure

If a member of the field crew demonstrates symptoms of chemical exposure of any sort, the procedures outlined below will be followed:

- Another team member (buddy) will remove the individual from the immediate area of contamination. The buddy must advise the FTL of the chemical exposure. The field team will contact the appropriate emergency response agency.

- Precautions will be taken to avoid exposure of other individuals to the chemical.

- If the chemical is on the individual's clothing, the chemical will be neutralized or removed if it is safe to do so.

- If the chemical has contacted the skin, the skin will be washed with copious amounts of water.

- In case of eye contact, an emergency eyewash will be used, washing the eyes for at least 15 minutes.

- As required, the affected person will be conveyed to the nearest hospital emergency room for treatment. The contractor PM will be called immediately, and will assume that contractor's occupational health and safety physician gets in contact with the emergency room to assist in treatment options.

- All chemical exposure incidents must be reported in writing to the Corporate Manager of Health & Safety (CMHS) and Corporate Director of Human Resources (CDHR). The SSO or FTL is responsible for completing the accident report form.

- Immediate follow-up action will be taken to correct the situation which caused the exposure.

4.9.2 Personal Injury

In case of personal injury at the site, the following procedures will be followed:

- Another team member (buddy) will signal the field team leader that an injury has occurred.

- A field team member trained in first aid can administer treatment to an injured worker.

- The victim will then be transported to the nearest hospital or medical center. If necessary, an ambulance will be called to transport the victim. Contractor offices will be immediately contacted to activate contractor's occupational health and safety physician. The physician will contact the emergency room to assist in treatment as necessary.

- The FTL or SSO is responsible for making certain that an accident report form is completed. This form is to be submitted to the contractor CMHS & CDHR by fax or as soon as possible. Immediate follow-up action must be taken to correct the situation that caused the accident.

4.9.3 Evacuation Procedures

- The FTL will initiate the evacuation procedure by signaling the team to leave the site with three blasts of the air horn.

- All personnel in the work area will evacuate the area and meet in the common designated area.

- All personnel suspected to be in or near the contract work area must be accounted for and the whereabouts of missing persons determined immediately.

- Further instructions will then be given by the FTL.

Procedures implemented in the event of a major fire, explosion, or onsite health emergency crisis:

- A field team member will notify the paramedics and/or fire department, as necessary.
- The FTL will signal the evacuation procedure previously outlined and implement the entire procedure.
- The area will be isolated.
- Field team members will be instructed to stay upwind of any fire.
- The area surrounding the problem source will be kept clear after the incident occurs.

4.10 DECONTAMINATION PROCEDURES

If the vapor readings indicate respirator use, the following steps will be followed whenever personnel leave the exclusion zone/work area:

1. Remove all equipment, sample containers, and notes to the CRZ. Obtain decontamination solutions and decon the shovels, auger flights, etc. by brushing them under a water rinse. A high-pressure steam cleaner may also be used for decon. All waste and spent decon solutions will be properly contained.
2. Scrub boots and gloves with a stiff bristle brush and water. Washtubs and chairs will be provided.
3. Remove outer gloves (and boot covers, if used).
4. Remove Tyvek coverall; discard in provided container.

5. Remove hard hat and eye protection.

6. Remove respirator.

7. Remove inner gloves.

8. Wash hands and face.

The decontamination area will be covered with plastic sheeting which will be replaced when torn or heavily soiled, and at the end of each shift.

Each worker will be responsible for cleaning, sanitizing and storing their own respirator in accordance with manufacturer's guidance (i.e., washing in warm water and detergent or sanitizing solution, air drying, and storing in a plastic storage bag). Cartridges will be changed as soon as breakthrough occurs (detection of organic vapor odor while wearing the respirator) and at the end of each shift. Respirators will be kept in storage bags or boxes when not in use.

All spent decontamination fluids (rinse waters, etc.) shall be handled as hazardous waste until lab results indicate otherwise. Fluids shall be placed in proper containers, such as drums, and worked and labeled in accordance with 49 CFR 172.

4.10.1 Decontamination-Medical Emergencies

In the event of physical injury or other serious medical concerns, immediate first-aid is to be administered in lieu of further decontamination efforts.

4.10.2 Decontamination Of Tools

When all work activities have been completed, contaminated tools will be totally decontaminated. It is expected that all tools will be constructed of non-porous, non-absorbent materials. This will aid the decontamination process. Any tool, or part of a tool, which is made of a porous/absorbent material will be discarded and disposed of as a hazardous waste if it cannot be properly decontaminated.

Tools will be placed on a decontamination pad or into a bucket and thoroughly washed using a soap solution and brushing, followed by a fresh water rinse. All visible particles are to be removed before the tool is considered clean.

Those tools which would be damaged by a high pressure spray will be cleaned manually, using a soap solution and mechanical brush, followed by a fresh water rinse.

4.10.3 Heavy Equipment Decontamination

At locations where it is likely that heavy equipment will come in contact with contaminated soil, such heavy equipment will be decontaminated upon leaving the exclusion zone. This is generally not necessary when drilling through concrete or other "clean" pavement.

Partial decontamination efforts will be conducted in the exclusion zone. As much mud, dirt, rocks, etc., as possible will be mechanically removed from the tires, tracks, or outside of the equipment.

The heavy equipment will then be driven onto a decontamination pad located adjacent to the exclusion zone if lab results indicate otherwise. Fluids shall be placed in proper containers, such as drums, and worked and labeled in accordance with 49 CFR 172.

Following the washing, the heavy equipment will be driven into the support zone. Under no circumstances should heavy equipment be allowed to leave the site if it is not decontaminated.

4.11 PLACES OF REFUGE

The SSO will designate the assembly area prior to the start of work, and will include emergency information in the daily "tailgate" briefing. In the event of a site emergency requiring evacuation, all personnel will evacuate to a predesignated area located in the support zone, a safe distance from the exclusion zone boundary ("hot lines"). The SSO will designate the assembly area prior to the start of work and will include emergency information in the daily "tailgate" briefing.

4.12 FIRE

Whenever the possibility of a fire or explosion exists which could affect field investigation personnel or adjacent work area personnel, or which could occur as the result of the investigation, an emergency action plan is prepared as part of the task specification. The emergency action plan includes the following:

- Training is provided to employees by the SSO, including how and when to use the equipment, and evacuation drills; and

- The primary and alternate evacuation routes and places of assembly are posted at the investigation site.

Contractors and subcontractors must conform with the emergency action plan and are trained accordingly.

To protect against fires, the following special precautions must be taken:

- Before any flame-producing devices, i.e., cutting torches or welding irons, are used in the exclusion zone, the SSO must be contacted. A detailed inspection of the work area will be conducted to determine if potential fire sources exist. The fire sources must be removed to at least 35 feet away before work can commence;

- Two full 20-Pound ABC fire extinguishers must be located at the work area when cutting/welding is being conducted; and

- Upon completion of the cutting/welding activities the area will be inspected for hot metal, slag, etc.

Type ABC fire extinguishers will be available onsite to contain and extinguish small fires. The local fire department should be summoned in the event of any fire on site.

4.13 SAFETY EYEWASH

A 10-gallon, 15-minute safety eyewash or small, portable eyewash bottles will be available at the site for the sole purpose of flushing foreign particles or contaminants out of eyes. The SSO will demonstrate the proper operation of the unit prior to the start of work.

4.14 ACCIDENT/INCIDENT REPORT

In the event of an injury or illness, work is to be stopped until the SSO and the CMHS have determined the cause of the incident and have taken the appropriate action. Any injury or illness, regardless of severity, is to be reported, and an accident report form must be filled out and forwarded to contractor's corporate headquarters as soon as possible.

4.15 OPERATION SHUTDOWN

Under certain extreme hazardous situations the onsite personnel, SSO or SSR may request that operations be temporarily suspended while the underlying hazard is corrected or controlled. During operation shutdown, all personnel will be required to stand upwind to prevent exposure to fugitive emissions. The SSO will have ultimate authority for operations shutdown and restart.

4.16 SPILL OR HAZARDOUS MATERIALS RELEASE

Small spills will be immediately reported to the SSO and dealt with according to chemical manufacturers' recommended procedures. Spills or release of hazardous materials which result in human exposure or offsite environmental contamination will be promptly reported by the SSO to the proper authorities and appropriate measures taken to contain and/or collect the material for approved storage and disposal.

4.17 COMMUNITY SAFETY

There is a low potential for migration of chemicals from the site other than through groundwater or air emissions, both of which would be expected to contain low concentrations of hazardous material. In the unlikely event that significant offsite release of contaminants occur during the course of the field work, the appropriate state and local authorities will be notified immediately

and appropriate actions will be taken to protect the public health and mitigate the contaminant release.

4.18 TRAINING AND MEDICAL SURVEILLANCE

All contractor site personnel and subcontractor's personnel will have met the requirements of 29 CFR 1910.120 (e), including 40 hour training or its recognized equivalent annual refresher training and supervisor training. All contractor site personnel and subcontractor's personnel are participating in medical surveillance programs that meet the requirements of 29 CFR 1910.120(f). The PM will maintain current copies of training certificates and statements of medical program participation for all site personnel at the site.

In addition, all contractor site personnel and subcontractor personnel will sign a copy of the Safety Plan Acceptance Agreement Form. The PM will maintain these agreements at the site, and forward them to the CMHS at the conclusion of the operation.

Prior to the start of operations at the site, the SSO will conduct a tailgate safety meeting, which will include all personnel involved at the site. At this meeting, the SSO will discuss:

- General contents of this HASP;
- Types of hazards at the site and means for minimizing exposure to them;
- The type of monitoring that will be performed;
- PPE that will be used;
- Location and use of emergency equipment; and
- Emergency evacuation signals and procedures.

Subsequent site safety briefings will be conducted prior to each shift to review pertinent safety issues, discuss any problems, and outline safety aspects of the shift's tasks.

4.19 RECORDKEEPING

The PM and SSO are responsible for site recordkeeping. Prior to the start of work, they will review this plan; if there are no changes to be made, they will approve the plan.

All contractor and subcontractor's personnel will review the HASP and sign the Safety Plan Acceptance Agreement Form; copies of these forms will be forwarded to the CMHS.

The SSO will conduct a "tailgate" Site Safety Briefing prior to each shift (usually the first onsite activity of the morning) and all attendees and briefing subjects will be listed in the field log book. Copies will be available to the CMHS.

Any accident or exposure incident will be investigated and a report prepared and forwarded to the office administrative manager , the CMHS, and the CDHR.

All instrument readings and calibrations, PPE use and changes, health and safety-related issues, and deviations from or problems with this HASP will be recorded in the SSO's field notebook. As required, all portions of the SSO's field notebook will be available to the CMHS for review at the completion of field operations.

Attachment

Safety Plan Acceptance Agreement Form

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SAFETY PLAN ACCEPTANCE AGREEMENT
For
142nd Fighter Group, Oregon Air National Guard
Portland International Airport
Portland, Oregon

I have received a copy of the Health and Safety Plan for the Project. I have reviewed the plan, understand it, and agree to comply with all of its provisions. I understand that I could be prohibited from working on the project for violating any of the health and safety requirements specified in the plan.

Name	Signature	Date
Company		
Name	Signature	Date
Company		
Name	Signature	Date
Company		
Name	Signature	Date
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APPENDIX B
QUALITY ASSURANCE PROJECT PLAN

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Final

Quality Assurance Project Plan

for

Remedial Investigation Activities

at the

142nd Fighter Group
Oregon Air National Guard
Portland International Airport
Portland, Oregon

April 1996

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LIST OF ACRONYMS

AA	Atomic Absorption
ANG	Air National Guard
ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials
BCM	Bromochloromethane
C	Centigrade
CAS	Chemical Abstract Service
CC	Continuing Calibration
CLP	Contract Laboratory Program
COC	Chain-of-Custody
CVAA	Cold Vapor Atomic Absorption
DCB	Decachlorobiphenyl
DO	Dissolved Oxygen
DQOs	Data Quality Objectives
DRO	Diesel Range Organics
DW	Decontamination water
EB	Equipment Blank
EDD	Electronic Data Deliverable
EQL	Estimated Quantitation Limits
FB	Field Blank
FCR	Field Change Request
FID	Flame Ionization Detector
FG	Fighter Group
GC/MS	Gas Chromatography/Mass Spectrometry
GC	Gas Chromatography
GFAA	Graphite Furnace Atomic Absorption
GRO	Gasoline Range Organics
GW	Groundwater
HASP	Health and Safety Plan
HAZWRAP	Hazardous Waste Remedial Actions Program
HCl	Hydrochloric Acid
HNO_3	Nitric Acid
ICAL	Initial Calibration
ICP	Inductively Coupled Plasma
IRP	Installation Restoration Program
LCS	Laboratory Control Standard
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NPDES	National Pollution Discharge Elimination System
OANG	Oregon Air National Guard
OVA	Organic Vapor Analyzer

LIST OF ACRONYMS (Concluded)

PA	Preliminary Assessment
PARCCS	Precision Accuracy, Representativeness, Comparability, Completeness, and Sensitivity
PCB	Polychlorinated biphenyls
PE	Performance Evaluation
PID	Photoionization Detector
PPM	Priority Pollutant Metals
PDL	Practical Detection Limits
PQL	Practical Quantitation Limits
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
R-TIS	Real-Time Interpretation System
RI	Remedial Investigation
RPD	Relative Percent Difference
RRF	Relative Response Factor
RS	Remedial Study
SD	Sediment
SI	Site Investigation
SOP	Standard Operating Procedure
SOW	Statement of Work
SS	Surface Soil
SSO	Site Safety Officer
SU	Subsurface Soil
SVOC	Semivolatile Organic Compound
SW	Surface Water
TB	Trip Blank
TCL	Target Compound List
TPH	Total Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
USGS	United States Geologic Survey
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound
WP	Work Plan

SECTION 1.0 INTRODUCTION

This site-specific Quality Assurance Project Plan (QAPP) presents the overall policies, data quality objectives, and specific quality assurance and quality control requirements that the subcontractor will employ during the field effort for the Remedial Investigation at the 142nd Fighter Group (FG), Oregon Air National Guard (OANG), Portland International Airport, Portland, Oregon.

The overall objective of the QAPP is to establish guidelines for field sampling, documentation, laboratory analysis, over-all quality assurance and quality control procedures, and reporting requirements that will result in data of known quality. Specific procedures for field activities are located in Appendix C, Standard Operating Procedures (SOPs). The QAPP presents qualitative and quantitative goals for precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS) to ensure that the data will met the needs of the end user.

The specific objectives of the field effort are:

- To confirm or deny the existence of potential contaminants identified during the Preliminary Assessment (PA) and Site Investigation (SI) at Installation Restoration Program (IRP) Site Nos. 1, 2, 3, 4, 5 and 7.

- To confirm or deny the existence of potential contaminants identified in limited site-specific sampling efforts outside the scope of the SI at Site No. 9 and No. 10 and visual observations at Site No. 11 and to identify any additional contamination.

- To delineate, vertically and horizontally, the areas of contamination identified during previous investigations.

- Establish background conditions for soil and groundwater media to compare SI and Remedial Investigation (RI) sample results against the background data for selection of remedial alternatives for sites requiring remedial action.

- To locate and identify any buried material contained in the landfill at Site No. 8.

- To provide high quality field analytical data to make decisions on further action required in the field on a real time basis and supply supporting fixed-base laboratory analysis necessary to prepare a comprehensive investigative report.

The scope of field sampling and analysis to be performed at all Sites is discussed in Section 6.0 of the Work Plan. Sampling for all primary points will consist of site specific contaminants of concern. Secondary sampling point analyses will consist exclusively of parameters that include detected compounds found in primary analysis. Field and confirmatory sample analysis and sample quantities are presented in Table 1.1.

Table 1.1
Estimated Laboratory Sample Number and Analytical Methods
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

Matrix	Environmental Sample Quantity	Parameter	Methods	Field Duplicate Samples	MS/MSD	Equipment Rinseates	Field Blanks	Trip Blanks	Total Samples
Field Laboratory									
Water	85/195**	LLVOC	SOW 10-92	9/20	5/10	9/20	4	16	128/265
Water	85/195	SVOC	SOW 3-90	9/20	5/10	9/20	4	NA	112/249
Soil/sediment	121	VOC	SOW 3-90	13	7	13	4	NA	158
Soil/sediment	121	SVOC	SOW 3-90	13	7	13	4	NA	158
Fixed Base Laboratory									
Water	5/10	LLVOC	SOW 10-92	1	1	1	2	10	20/25
Water	5/10	SVOC	SOW 3-90	1	1	1	2	NA	10/15
Water	88/192**	PPM	SOW 3-90	9/20	5/10	9/20	4	NA	115/246
Water	26	PCB	SOW 3-90	3	2	3	4	NA	38
Soil/sediment	7	VOC	SOW 3-90	1	1	1	0	7	17
Soil/sediment	7	SVOC	SOW 3-90	1	1	1	0	NA	10
Soil/sediment	74	PPM	SOW 3-90	8	4	8	0	NA	94
Soil/sediment	22	PCB	SOW 3-90	3	2	3	0	NA	30
Soil/sediment	91	TPH	SW-846, (8015)	10	5	10	4	8	128
Field parameters analyzed at the fixed-base Laboratory									
Water	43	Nitrate	MCAWW 353.2***	0	0	0	0	0	43
Water	43	Nitrite	MCAWW 353.2***	0	0	0	0	0	43
Water	43	Ammonia	MCAWW 350.3***	0	0	0	0	0	43
Water	43	Phosphorus	MCAWW 365.2***	0	0	0	0	0	43
Water	43	Dissolved Oxygen	Hach***	0	0	0	0	0	43
Water	43	Carbon Dioxide	Hach***	0	0	0	0	0	43
Soil/sediment	36	Nitrate	MCAWW 353.2***	0	0	0	0	0	36
Soil/sediment	36	Nitrite	MCAWW 353.2***	0	0	0	0	0	36
Soil/sediment	36	Ammonia	MCAWW 350.3***	0	0	0	0	0	36
Soil/sediment	36	Phosphorus	MCAWW 365.2***	0	0	0	0	0	36
Soil gas	36	Oxygen	infrared spectrophotometry	0	0	0	0	0	36
Soil gas	36	Carbon dioxide	infrared spectrophotometry	0	0	0	0	0	36

LLVOC = Low Level Volatile Organic Compounds
SVOC = Semivolatile Organic Compounds
VOC = Volatile Organic Compounds
PPM = Priority Pollutant Metals
PCB = Polychlorinated Biphenyls
TPH = Total Petroleum Hydrocarbons
MCAWW, Methods for Chemical Analysis of Water and Wastes (MCAWW).
*MAX/MIN number of samples
**PPM Metals will be analyzed for both total and dissolved metals for all but 7 samples.
***Field parameters will be based on USEPA approved methods listed but will not adhere to definative level data analysis requirements. Soil extraction will be required for all soil/sediment samples.
Numbers reflect sampling points.
Actual number of analysis will be 169/377.

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SECTION 2.0 ORGANIZATION AND RESPONSIBILITIES

2.1 ORGANIZATION

The subcontractor will conduct an RI at IRP Site Nos. 1, 2, 3, 4, 5, 7, 8, 9, 10, 11 and background sampling to delineate suspected or identified areas of contamination and identify any additional contamination at OANG, Portland International Airport, Portland, Oregon. This work will be performed under the direction of the Hazardous Waste Remedial Actions Program (HAZWRAP). The project management organization is shown in Figure 2.1.

2.2 AUTHORITY AND RESPONSIBILITY

2.2.1 Hazardous Waste Remedial Actions Program (HAZWRAP)

HAZWRAP is responsible for providing direct technical oversight and direction to the subcontractor during all tasks performed on this project. HAZWRAP has the contract management responsibilities; all technical direction to the subcontractor must be initiated through HAZWRAP representatives. HAZWRAP staff will provide assistance and information to the subcontractor regarding appropriate permits, badges, security information, access, waste-handling practices, etc. HAZWRAP will provide on-site technical direction and guidance as needed during the RI field effort. The HAZWRAP Project Manager is the principal point of contact with the OANG and is responsible for implementation of the technical requirements and the statement of work (SOW).

2.2.2 Headquarters Air National Guard Installation Restoration Program (IRP) Coordinator

The Headquarters Air National Guard (HQ ANG/CEVR) Installation Restoration Program (IRP) Coordinator is responsible for the implementation of the IRP and related activities at the Base, including technical and contractual direction of activities performed at the site through HAZWRAP.

2.2.3 Subcontractor

The subcontractor is responsible for all activities involved in conducting the RI. The subcontractor is responsible for day-to-day execution of the project, programmatic decisions,

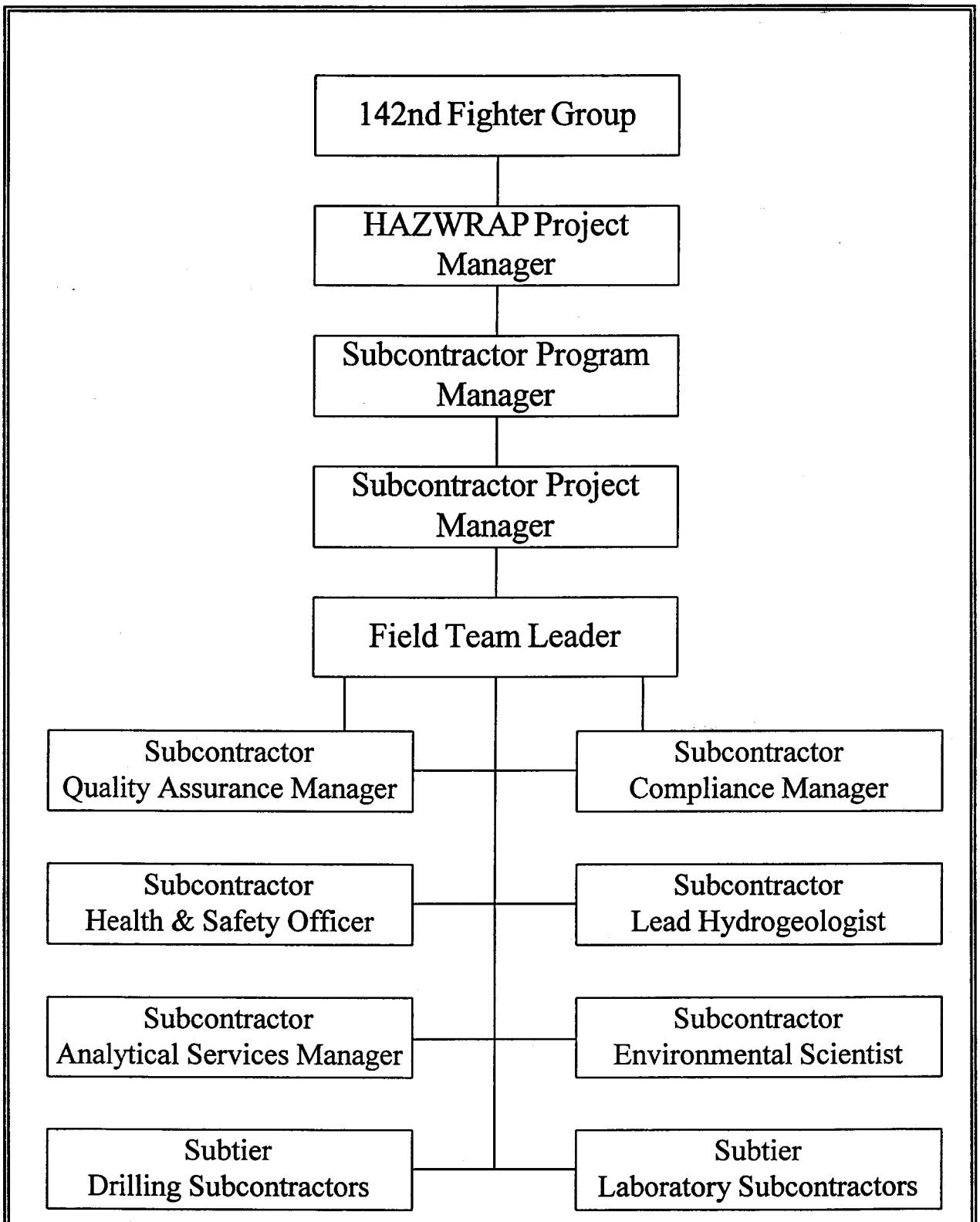

Figure 2.1	**Project Organization Chart** 142nd Fighter Group, Oregon Air National Guard Portland International Airport, Portland, Oregon	OPTECH Operational Technologies CORPORATION

meeting milestones, and transmitting deliverables. The project team will include the following key personnel:

The Program Manager will be responsible for the overall execution of this project, for contract negotiation or modification, for organizational coordination, and for maintaining an open line of communication with the HAZWRAP Project Manager.

The Project Manager (PM) will directly supervise the project team, direct field operations, and coordinate subcontractor and sub-tier contractor support. The Project Manager will be the technical interface between HAZWRAP and the project team.

The Quality Assurance/Quality Control (QA/QC) Manager will be responsible for ensuring that effective procedures and controls are implemented to achieve a high level of project accuracy. Details of the QA/QC Manager's duties are provided in other sections of this QAPP.

The Site Safety Officer (SSO) will be responsible for assuring that threats from physical and chemical hazards are mitigated through effective execution of the Health and Safety Plan.

The Data Management and Analytical Evaluation Manager (DEM) is responsible for all subcontracted laboratory performance including data management, reviewing analytical data from field and fixed-base laboratories, and determining compliance with appropriate analytical QA/QC requirements, data quality objectives (DQOs) and turn-around time requirements. The verification process is performed independently of the laboratory program to assist in determining whether the data meets the DQOs.

The Field Team Leader is responsible for direct supervision of all field operations including planning, conducting, and overseeing all field personnel, including sub-tier contractors.

2.2.4 Sub-Tier Contractor Requirements

The subcontractor is responsible for the cost, schedule, and quality of all work performed under this contract delivery order, including the work of sub-tier contractors. The subcontractor will hire sub-tier contractors to provide services in any area where support to

subcontractor efforts is required. Subcontractor's Project Manager will maintain oversight of the sub-tier contractors' completion of specified tasks with respect to technical performance, quality, and adherence to cost and schedule. All sub-tier contractor activity will adhere to applicable site procedures, policies, and the project QAPP. This requirement will be included in all contracts between the subcontractor and sub-tier contractor. Failure of a sub-tier contractor to comply with requirements of the QAPP, or other contractual requirements, may be viewed as a breach of contract and grounds for contract termination.

Procurement of laboratory sub-tier contractors for analyzing environmental samples shall be strictly controlled. Only fixed-base laboratories recommended by HAZWRAP which have a demonstrated capability to provide the level of data quality required for this project will be employed. Field laboratories will be required to undergo extensive performance based review and surveillance. All subcontracted laboratories must comply with all requirements presented in the Work Plan, HAZWRAP Requirements for Quality Control of Analytical Data (DOE/HWP-65/R1, June 1990) and Quality Control Requirements for Field Methods (DOE/HWP-69/R1, June 1990). Minimum elements of analytical services procurement criteria shall include the following:

- Demonstrated ability to perform the analyses required at a specific capacity;
- Ability to handle the types of material to be analyzed, including all applicable licenses and permits;
- Demonstrated ability to perform the types of analysis and QC required.
- Demonstrated ability to produce documentation and deliverables required for this project including analytical results, electronic data, and mapping information in a timely manner.
- Capable and available laboratory equipment and personnel; and
- The field laboratory will have the ability to incorporate site-specific requirements of this QAPP into a Site specific laboratory quality assurance plan and Standard Operating Procedures (SOPs) for the field laboratory.

SECTION 3.0 DATA QUALITY OBJECTIVES

DQOs are quantitative and qualitative statements specified to ensure that data of known and appropriate quality are obtained during the RI activities. To ensure that data generated during field activities are adequate to support decisions regarding the selection of appropriate corrective measures, the objectives and the method by which decisions will be made must be established in the project planning process. DQOs are based on the specific use of the data collected. Data obtained during this RI will provide the basis for decisions on corrective measures to ensure sites are within compliance standards. Specifically, the data collected during this investigation will be used to:

- Characterize sources of contamination and pathways.
- Determine the nature and extent of contamination.
- Perform a screening risk assessment.
- Make recommendations for additional investigation, remedial actions, or decision documents.

The quantitative measurements that estimate the true value or actual concentration of a physical property always involve some level of uncertainty. The uncertainty associated with a sample generally results from: (1) natural variability (heterogeneity) of the sample, (2) sample handling operations and conditions, (3) spatial and temporal patterns, and (4) analytical variability. These uncertainties must be estimated in order to obtain reliable data and to make appropriate decisions about remediation alternatives. If the level of uncertainty can be quantified, then it can be compared to standard quantitative indicators, the DQOs, for data quality. By quantifying the level of uncertainty a decision maker will be able to use the results derived from the data collected.

3.1 QUALITY MANAGEMENT

Subcontractor has overall responsibility for QA activities during this project. The QA/QC Manager or a designee will be responsible for ensuring all QC procedures are followed. The QA/QC Manager or his/her designee will be responsible for conducting audits to verify that the QA Program is implemented in compliance with project-specific requirements and United States Environmental Protection Agency (USEPA) regulations. Immediate corrective actions will be taken at any time it is deemed necessary, and verification of corrective actions shall be provided. All quality control procedures will be performed in accordance with this QAPP.

3.2 DATA QUALITY OBJECTIVE LEVELS

DQOs are divided into two data quality levels. These levels express the uncertainty level a decision maker is willing to accept in results derived from environmental data. As such, they are a management tool used to decrease the probability that data will lead to an incorrect conclusion.

Two levels of data options to support data collection are identified by USEPA. These QC Levels are definitive and screening level data as described in EPA/504/G-93/71. These levels are based on the level of accuracy and precision required, and the intended use of the data. HAZWRAP analytical QC Levels A and B correspond to screening level data. HAZWRAP analytical QC levels C and D correspond to definitive level data.

3.2.1 Screening Level Data

Screening level data is generated by rapid, less precise methods of analysis with less rigorous sample preparation. Sample preparation steps may be restricted to simple procedures such as dilution with a solvent, instead of elaborate extraction/digestion and cleanup or direct matrix introduction. Screening data provide analyte identification and potentially supply limited quantitation, although the quantitation may be relatively imprecise.

This level is characterized by the use of hand-held instruments that may identify the presence of a class of compounds, without actually identifying or quantifying a specific compound. This level of data may be used for (1) delineation of contaminated zones, (2) gross determination of analytes in samples or (3) health and safety screening.

Field grade analytical instruments that allow identification of compounds and, in some instances, quantification with moderate accuracy and precision limits are also considered to produce field screening data. Normally field grade analytical instruments are used in a mobile or temporary laboratory on site. For the field effort at the 142nd FG, two tiers of screening level data will be required: (1) field measurement data, and (2) field analytical screening data.

For the field effort, field measurement data that are not confirmed by definitive level data are specified for the following activities:

- Health and Safety Monitoring - Health and safety monitoring will be performed with portable hand-held instruments and colorimetric response tubes. The intended use of the data is to identify the presence or absence of contaminants during site activities. Since extensive QC is not required for health and safety monitoring, definitive confirmation is not required.

- Field Measurements - Routine field measurements, such as water level measurements, pH, and conductivity measurements may also provide input for site characterization. Definitive confirmation is not required, because the intended use of data is primarily for monitoring. Field measurement data will be acquired in the field for dissolved oxygen (DO) and carbon dioxide, (CO_2), in up to four groundwater samples at each site. Soil gas measurements for oxygen, (O_2), and CO_2 will be performed for up to four points at each site in the field. Approximately four groundwater and four soil samples from each site will be collected and shipped to the fixed-base laboratory for analysis of nitrate, nitrite, ammonia, and phosphorous (total and reactive). The data is designed to meet field measurement data quality objectives but will be analyzed at a fixed base laboratory due to the wide range of parameters, equipment, reagents and man hours required to perform these tests for soil and groundwater in the field. Results only will be reported for the field measurement-type data analyzed at the fixed-base laboratory. No field QC samples, confirmation samples, or laboratory QC samples will be collected or analyzed. These data are for semi-quantitative screening purposes only and will not require definitive confirmation

- Field Screening - Field screening of soil and groundwater samples using a photoionization detector (PID), or an organic vapor analyzer (OVA) provides preliminary qualitative data and help to prioritize samples for further analysis or disposal. These data are for semi-quantitative screening purposes only and will not require definitive confirmation.

In addition to screening level data for field measurements, field analytical data for qualitative and quantitative purposes will be acquired using a field mobile laboratory. The field analytical data collected will be of a high quality screening level intended to be used to make real-time decisions on further actions required. Screening level data will be generated using more analytical QC than the minimum required for HAZWRAP Level B field screening analysis, but will not meet all definitive level data requirements due to modified sample preparation

techniques for semivolatile organic compounds (SVOCs), and the types and frequencies of field and laboratory QC.

- Field Analytical Screening - A mobile laboratory will be capable of generating quantitative and qualitative results for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) utilizing mobile laboratory grade gas chromatography/ mass spectrometry (GC/MS). These data are for both qualitative and quantitative purposes. The data generated for both VOCs and SVOCs will be closely monitored for data quality through tune accuracy, initial and continuing calibrations precision and accuracy, surrogate and internal standard recoveries, and matrix spike/matrix spike duplicate precision and accuracy.

At least 5% of field analytical screening level data (only VOC and SVOC) will be confirmed using analytical methods and QA/QC procedures and criteria associated with definitive data.

3.2.2 Definitive Level Data

Definitive data are generated using rigorous analytical methods, such as approved USEPA reference methods. Data are analyte-specific, with confirmation of analyte identity and concentrations. Methods produce tangible raw data (e.g., chromatograms, spectra, digital values, etc,) in the form of paper printouts or computer-generated electronic files. Data may be generated at the site or at an off-site location, as long as the QA/QC requirements are satisfied.

This level of data analysis is characterized by the fixed-base laboratory analysis or sophisticated mobile laboratories, and provides lower detection limits, a wide range of calibrated analytes, matrix recovery information, laboratory process control information, and known precision and accuracy. USEPA-accepted methods, such as those in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, (SW-846), the National Pollution Discharge Elimination Systems (NPDES), and Contract Laboratory Program (CLP) are utilized for definitive data.

For the field effort at OANG, samples requiring definitive level data analysis will be performed at a HAZWRAP-recommended fixed-base laboratory. All samples requiring analysis for priority pollutant metals (PPMs) (filtered and unfiltered), total petroleum hydrocarbons (TPH), and polychlorinated biphenyls (PCBs) will be submitted to the fixed-base

laboratory. In addition, definitive level data analysis will be performed for approximately five percent of samples that are analyzed by the field laboratory for VOCs and SVOCs. The definitive level data analysis of these samples will serve as a confirmation analysis of the field laboratory results for VOCs and SVOCs.

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SECTION 4.0 QUALITY CONTROL FOR SAMPLE COLLECTION AND ANALYSIS

The overall quality control objective is to develop and implement procedures that will ensure sufficient quality in field sample collection, field laboratory analysis, fixed-base laboratory analysis, and reporting to meet the needs of end users of the data. Documentation requirements including field logbooks, chain-of-custody forms, and field change order requests are located in other sections of the QAPP. This section presents overall analytical quality control protocols from the time of sample collection through data analysis. DQOs and precision, accuracy, representativeness, completeness, comparability and sensitivity (PARCCS) of the analytical data are discussed in Section 5.

4.1 FIELD QUALITY CONTROL SAMPLES

Field duplicate samples, field blanks, equipment rinseates, and trip blanks will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field sampling program. Field and trip blanks samples will be analyzed to check for procedural contamination and ambient conditions at the site that may have caused sample contamination. Duplicate samples will be submitted under a non-indicative sample identification to provide a quality assurance check on analytical procedures and results. The QC samples and associated frequencies for this project are described below.

- **Trip Blanks** - Trip blanks are used to detect contamination by VOCs during shipping and handling. Trip blanks are 40-mL volatile organic analysis (VOA) vials of analyte-free water and are preserved with HCL to pH $\leq$ 2. Trip blanks will be supplied by the laboratory performing the analysis. Trip blanks must have zero headspace and should not be opened in the field. One trip blank set will be placed in each cooler containing VOA samples, regardless of sample matrix, and submitted to the fixed-base laboratory. One trip blank will be submitted to the field laboratory per week. The number of VOA vials comprising a trip blank set is laboratory-dependent; the number of vials required will be specified by the selected fixed-base laboratory. Trip blanks are analyzed for VOCs only.

- **Field Blanks** - Field blanks are QA/QC samples intended to determine if any of the water used during the field investigation contains detectable concentrations of any organic or inorganic analytes that may impact the quality of the samples. Field blanks are samples of the source water used for decontamination and steam cleaning.

At a minimum, one sample for each source of water will be collected. Field blanks will be analyzed for the same parameters as the original samples of interest by the fixed-base laboratory. Field blanks will be collected and analyzed at a frequency of 1 per mobilization per source at the field laboratory and 1 per field event (any time frame where sampling has not occurred for more than 24 hours) for fixed laboratory analysis. American Society for Testing Materials (ASTM) Type II water used for final rinsing, and the tap water used for initial cleaning, are sources of water that are commonly sampled.

- **Equipment Rinseates** - Equipment rinseates are used as a measure of the effectiveness of the decontamination process. Equipment rinseates are samples of the final analyte-free water rinse from equipment cleaning and are submitted to the fixed-base laboratory for analysis. The equipment rinseates will be analyzed for the same analytes as the samples that are collected. Samples will be collected for every type or piece of sampling equipment at a frequency of one for every 10 investigative samples collected per sample matrix per site and analyzed at the field laboratory. Equipment rinseates will also be analyzed at a 10% (of the project total equipment rinseates) frequency at the fixed-base laboratory.

- **Field Duplicates** - Field duplicates are used to assess the precision of sampling techniques and to provide checks on laboratory and field procedures. Field duplicates will be collected at a frequency of one for every 10 samples collected per sample matrix for field analysis. Field duplicates will also be collected at 10% frequency for fixed- base confirmation analysis of VOCs and SVOCs (10% duplicates of the 10% confirmation samples). For parameters analyzed only at the fixed-base laboratory, field duplicates will be submitted at a frequency of 10% of total samples collected for each matrix.

- **Matrix Spike/Matrix Spike Duplicate (MS/MSD)** - MS and MSD samples are samples from a specific media that have been spiked at the laboratory with known quantities of analytes. MS and MSDs are used to determine the accuracy and precision of the laboratory analyses as well as matrix interferences. Data from MS and MSD sample recovery supply percentage recovery information so the laboratory can evaluate its measurement accuracy and precision. MS and MSD samples are equal portions of a single initial sample that has been spiked with specific analytes in known quantities and must meet certain laboratory requirements to be acceptable.

The total number of MS/MSD samples will be at a frequency of one per 20 samples collected per sample matrix or every 14 days, which ever is more frequent for fixed-base confirmation analysis and field laboratory analysis.

4.2 CONFIRMATION SAMPLING

Confirmation samples for definitive level data analysis at a fixed-base laboratory, independent of the field laboratory, are used to determine whether the field laboratory is able to accurately and precisely analyze samples to the quality and precision required to meet DQOs. Approximately five percent of samples that are analyzed by the field laboratory for VOCs and SVOCs will be collected in duplicate and submitted to the fixed-base laboratory for VOC and SVOC confirmation analysis. Confirmation samples for fixed-base laboratory analysis of VOCs and SVOCs will be selected at random, but will be evenly distributed among the ten sites. Confirmation samples will include one background monitoring well from each round of sampling and at least three samples reported above the action level by the field laboratory, and three samples reported below the action level (or as non-detects) by the field laboratory.

Sample collection reproducibility, analytical reproducibility, and the acceptable variability of accuracy will affect the range or values when comparing field confirmation data. This variable will consequently be summed to obtain the acceptable window for confirmation.

4.3 ANALYTICAL PARAMETERS

Analysis of soil and groundwater samples taken in accordance with the Field Sampling Plan for the site will be performed in accordance with analytical procedures that conform to USEPA guidelines published in the SW-846 and Methods for Chemical Analysis of Water and Wastes, (MCAWW).

Field laboratory analysis will consist of VOC and SVOC analysis for water and soil samples. The water samples will be analyzed using SW-846 Method 8260 for low level VOC analysis with purge-and-trap sample preparation Method 5030. The USEPA 3/90 Target Compound List (TCL) plus BCM will be reported for soil and water. The TCL with Practical Quantitation Limits (PQLs) for VOCs are shown in Table 4.1. Analysis of soil and water samples in the field for SVOC will use SW-846 Method 8270 with a modified SW-846 Method 3510, separatory funnel extraction for water samples and a modified SW-846 Method 3550, ultrasonic extraction, for soil samples. Modifications to the SVOC method include a micro extraction preparation (approximately 100 milliliters or 5 grams of sample and 5-15 milliliters of solvent), and a increased sample injection volume. Due to the modified

extraction the estimated reporting limits for SVOCs in the field laboratory are expected to be five times the PQLs required in the fixed-base laboratory. The reported quantitation limits will be based on method detection limit (MDL) studies performed in the field. Sample injection volume, extraction time, sample volume, and extract volume may be modified to achieve the reporting limits. USEPA TCL will be reported for SVOC samples. Table 4.2 presents the SVOC TCL and estimated quantitation limits (EQLs) for the field laboratory and PQLs for the fixed-base laboratory.

All fixed-base laboratory analysis for definitive level data will require seven day turn-around for results only. Five percent of VOCs and SVOCs analyzed in the field will be submitted for fixed-base analysis. TPH, PCBs, and PPM will be analyzed at the fixed base laboratory only. TPH will be analyzed for soil samples only. Field parameters analyzed at the fixed-base laboratory (nitrate, nitrite, ammonia, and phosphorus) will require 30 day turn-around time for results only. No additional data package will be required for field parameters analyzed at the field-base laboratory.

Fixed-base VOC analysis will use the same preparation and analysis methods used in the field. Fixed-base laboratory SVOC analysis of soil samples will use the same SW-846 methods used in the field without any sample preparation modifications to the extraction methods. Water samples for SVOC analysis may be extracted using more automated procedures including SW-846 Method 3520, liquid-liquid extraction. TPH will be analyzed using SW-846 modified Method 8015 with purge and trap sample preparation (Method 5030) for gasoline range organics (GRO) for soil samples. Extraction preparation methods for soil samples will be required for diesel range organics (DRO) and jet fuel fractions analysis. Soils will be extracted for DRO and jet fuel analysis utilizing Method 3550, sonication. PQLs for TPH analysis are located in table 4.3. PCBs and PPM metals will be analyzed at the fixed-base laboratory using SW-846 Methods 8080 and 6010/7000 series respectively. Sample preparation for PCB water samples will follow SW-846 Method 3510/3520 and soil samples will follow Method 3540/3550. Table 4.4 lists the PQLs for PCBs. Metals samples will be collected for total and dissolved metals aqueous analysis. Dissolved metals samples will be filtered in the field. If all metals detection limits can be achieved by ICP(with the exception of mercury), ICP will be used exclusively. Mercury analysis will follow cold vapor atomic absorption methods SW-846 Method 7470 for soil samples and 7471 for water samples. Practical Detection Limits (PDLs) for all fixed-base metal parameters are located in Tables 4.5.

All soil samples for the RI will be reported on a dry weight basis. Tables 4.1 through 4.5 list soil quantitation limits on a wet weight basis. Actual quantitation limits will be higher for environmental soil/sediment samples based on the moisture content of each sample.

Table 4.1
Practical Quantitation Limits for Volatile Organic Compounds for Soil and Water Samples Using SW-846 Method 8260 (GC/MS)
142nd Fighter Group OANG
Portland International Airport, Portland, Oregon

Volatiles	CAS Number	Quantitation Limits	
		Water µg/L	Soil µg/kg
Chloromethane	74-87-3	1	10
Bromomethane	74-83-9	1	10
Vinyl chloride	75-01-4	1	10
Chloroethane	75-00-3	1	10
Methylene chloride	75-09-2	2	10
Acetone	67-64-1	5	10
Carbon disulfide	75-15-0	1	10
1,1-Dichloroethene	75-35-3	1	10
1,1-Dichloroethane	156-59-4	1	10
1,2-Dichloroethene (Total)	540-59-0	1	10
Chloroform	67-66-3	1	10
1,2-Dichloroethane	107-06-2	1	10
2-Butanone	78-93-3	5	10
Bromochloromethane	74-97-5	1	10
1,1,1-Trichloroethane	71-55-6	1	10
Carbon Tetrachloride	56-23-5	1	10
Bromodichloromethane	75-27-4	1	10
1,2-Dichloropropane	78-87-5	1	10
cis-1,3-Dichloropropene	10061-01-5	1	10
Trichloroethene	79-01-6	1	10
Dibromochloromethane	124-48-1	1	10
1,1,2-Trichloroethane	79-00-5	1	10

Table 4.1 (Concluded)
Practical Quantitation Limits for Volatile Organic Compounds for Soil and Water Samples Using SW-846 Method 8260 (GC/MS)
142nd Fighter Group OANG
Portland International Airport, Portland, Oregon

Volatiles	CAS Number	Quantitation Limits	
		Water µg/L	Soil µg/kg
Benzene	71-43-2	1	10
trans-1,3-Dichloropropene	10061-02-6	1	10
Bromoform	75-25-2	1	10
4-Methyl-2-pentanone	108-10-1	5	10
2-Hexanone	591-78-6	5	10
Tetrachloroethene	127-18-4	1	10
1,1,2,2-Tetrachloroethane	79-34-5	1	10
1,2-Dibromoethane	106-93-4	1	10
Toluene	108-88-3	1	10
Chlorobenzene	108-90-7	1	10
Ethylbenzene	100-41-4	1	10
Styrene	100-42-5	1	10
Xylenes (total)	1330-20-7	1	10

Sample quantitation limits are highly matrix-dependant. The quantitation limits listed herein are provided for guidance and may not always be achievable.
Quantitation limits listed for soil/sediment are based on wet weight. Normally data is reported on a dry weight basis; therefore, quantitation limits will be higher based on the % dry weight in each sample.

mg/kg - milligrams/kilograms.
mg/L - milligrams/Liter.
GS/MS - Gas chromatography/Mass Spectroscopy.
OANG - Oregon Air National Guard.
CAS - Chemical Abstract Service.
µg/L - microgram/liter.
µg/kg - microgram/kilogram.

Table 4.2
Practical Quantitation Limits for Semivolatile Organic Compounds for Soil and Water Samples Using SW-846 Method 8270 (GC/MS) 142nd Fighter Group OANG, Portland International Airport, Portland, Oregon

Semivolatiles	CAS Number	Quantitation Limits			
		Ground Water µg/L		Low Soil/Sediment µg/kg	
		Fixed Base Lab	Field Lab	Fixed Base Lab	Field Lab
Phenol	108-95-2	10	50	330	1650
bis(2-Chloroethyl) ether	111-44-4	10	50	330	1650
2-Chlorophenol	95-57-8	10	50	330	1650
1,3-Dichlorobenzene	541-73-1	10	50	330	1650
1,4-Dichlorobenzene	106-46-7	10	50	330	1650
1,2-Dichlorobenzene	95-50-1	10	50	330	1650
2-Methylphenol	95-48-7	10	50	330	1650
2,2'-oxybis (1-Chloropropane)	108-60-1	10	50	330	1650
4-Methylphenol	106-44-5	10	50	330	1650
N-Nitroso-di-n-propylamine	621-64-7	10	50	330	1650
Hexachloroethane	67-72-1	10	50	330	1650
Nitrobenzene	98-95-3	10	50	330	1650
Isophorone	78-59-1	10	50	330	1650
2-Nitrophenol	88-75-5	10	50	330	1650
2,4-Dimethylphenol	105-67-9	10	50	330	1650
bis(2-Chloroethoxy)methane	111-91-1	10	50	330	1650
2,4-Dichlorophenol	120-83-2	10	50	330	1650
1,2,4-Trichlorobenzene	120-82-1	10	50	330	1650
Naphthalene	91-20-3	10	50	330	1650
4-Chloroaniline	106-47-8	10	50	330	1650
Hexachlorobutadiene	87-68-3	10	50	330	1650

Table 4.2 (Continued)
Practical Quantitation Limits for Semivolatile Organic Compounds for Soil and Water Samples Using SW-846 Method 8270 (GC/MS)
142nd Fighter Group OANG,
Portland International Airport, Portland, Oregon

Semivolatiles	CAS Number	Quantitation Limits			
		Ground Water µg/L		Low Soil/Sediment µg/kg	
		Fixed Base Lab	Field Lab	Fixed Base Lab	Field Lab
4-Chloro-3-methylphenol	59-50-7	10	50	330	1650
2-Methylnaphthalene	91-57-6	10	50	330	1650
Hexachlorocyclopentadiene	77-47-4	10	50	330	1650
2,4,6-Trichlorophenol	88-06-2	10	50	330	1650
2,4,5-Trichlorophenol	95-95-4	25	125	800	4000
2-Chloronaphthalene	91-58-7	10	50	330	1650
2-Nitroaniline	88-74-4	25	125	800	4000
Dimethylphthalate	131-11-3	10	50	330	1650
Acenaphthylene	208-96-8	10	50	330	1650
2,6-Dinitrotoluene	606-20-2	10	50	330	1650
3-Nitroaniline	99-09-2	25	125	800	4000
Acenaphthene	83-32-9	10	50	330	1650
2,4-Dinitrophenol	51-28-5	25	125	800	4000
4-Nitrophenol	100-02-7	25	125	800	4000
Dibenzofuran	132-64-9	10	50	330	1650
2,4-Dinitrotoluene	121-14-2	10	50	330	1650
Diethylphthalate	84-66-2	10	50	330	1650
4-Chlorophenyl-phenyl-ether	7005-72-3	10	50	330	1650
Fluorene	86-73-7	10	50	330	1650
4-Nitroaniline	100-01-6	25	125	800	4000
4,6-Dinitro-2-methylphenol	534-52-1	25	125	800	4000
N-nitrosodiphenylamine	86-30-6	10	50	330	1650

Table 4.2 (Continued)
Practical Quantitation Limits for Semivolatile Organic Compounds
for Soil and Water Samples Using SW-846 Method 8270 (GC/MS)
142nd Fighter Group OANG,
Portland International Airport, Portland, Oregon

Semivolatiles	CAS Number	Quantitation Limits			
		Ground Water µg/L		Low Soil/Sediment µg/kg	
		Fixed Base Lab	Field Lab	Fixed Base Lab	Field Lab
4-Bromophenyl-phenylether	101-55-3	10	50	330	1650
Hexachlorobenzene	118-74-1	10	50	330	1650
Pentachlorophenol	87-86-5	25	125	800	4000
Phenanthrene	85-01-8	10	50	330	1650
Anthracene	120-12-7	10	50	330	1650
Carbazole	86-74-8	10	50	330	1650
Di-n-butylphthalate	84-74-2	10	50	330	1650
Fluoranthene	206-44-0	10	50	330	1650
Pyrene	129-00-0	10	50	330	1650
Butylbenzylphthalate	85-68-7	10	50	330	1650
3,3'-Dichlorobenzidine	91-94-1	10	50	330	1650
Benzo(a)anthracene	56-55-3	10	50	330	1650
Chrysene	218-01-9	10	50	330	1650
bis(2-Ethylhexyl)phthalate	117-81-7	10	50	330	1650
Di-n-octylphthalate	117-84-0	10	50	330	1650
Benzo(b)fluoranthene	205-899-2	10	50	330	1650
Benzo(k)fluoranthene	207-08-9	10	50	330	1650
Benzo(a)pyrene	50-32-8	10	50	330	1650
Indeno(1,2,3-cd)pyrene	193-39-5	10	50	330	1650

Table 4.2 (Concluded)
Quantitation Limits for Semivolatile Organic Compounds for Soil and Water Samples Using SW-846 Method 8270 (GC/MS)
142nd Fighter Group OANG,
Portland International Airport, Portland, Oregon

Semivolatiles	CAS Number	Quantitation Limits			
		Ground Water µg/L		Low Soil/Sediment µg/kg	
		Fixed Base Lab	Field Lab	Fixed Base Lab	Field Lab
Dibenz(a,h)anthracene	53-70-3	10	50	330	1650
Benzo(g,h,i)perylene	191-24-2	10	50	330	1650

Sample quantitation limits are highly matrix-dependant. The quantitation limits listed herein are provided for guidance and may not always be achievable.
Quantitation limits listed for soil/sediment are based on wet weight. Normally data is reported on a dry weight basis; therefore, quantitation limits will be higher based on the % dry weight in each sample.
GC/MS - Gas Chromatography/Mass Spectroscopy.
OANG - Oregon Air National Guard.
CAS - Chemical Abstract Service.
µg/L - microgram/liter.
µg/kg - microgram/kilogram.

Table 4.3
Fixed-Base Laboratory Practical Quantitation Limits (PQLs) for Nonhalogenated Volatile Organic Compounds for Soil Samples Using SW-846 Modified Method 8015 (GC)
142nd Fighter Group, OANG
Portland International Airport, Portland, Oregon

Compound	CAS Registration Number	Estimated Quantitation Limits
		Low Soil/Sediment µg/kg
Gasoline Range[1] Organics (GRO)	NA	10,000
Diesel Range[2] Organics (DRO)	NA	10,000
Jet Fuel[2]	NA	10,000

GC/MS - Gas Chromatography/Mass Spectroscopy.
CAS - Chemical Abstract Service.
[1] Sample preparation method is SW-846 Method 5030.
NA - Not Applicable.
OANG - Oregon Air National Guard.
µg/kg - microgram/kilogram.
[2] Sample preparation method is SW-846 Method 3510 or 3520 for water and 3550 for soils.

Table 4.4
Fixed-Base Laboratory Practical Quantitation Limits for Polychlorinated Biphenyl Compounds for Water and Soil Samples Using SW-846 Method 8080 (GC)
142nd Fighter Group, OANG
Portland International Airport, Portland, Oregon

Compound	CAS Number	Estimated Quantitation Limit	
		Groundwater µg/L	Low Soil/Sediments µg/kg
PCB-1016	12674-11-2	1.0	33
PCB-1221	11104-28-2	2.0	67
PCB-1232	11141-16-5	1.0	33
PCB-1242	53469-21-9	1.0	33
PCB-1248	12672-29-6	1.0	33
PCB-1254	11097-69-1	1.0	33
PCB-1260	11096-82-5	1.0	33

GC - Gas Chromatography.
OANG - Oregon Air National Guard.
CAS - Chemical Abstract Service.
µg/L - microgram/liter.
µg/kg - microgram/kilogram.

Table 4.5
Fixed-Base Laboratory Practical Detection Limits for Priority Pollutant Metals List
142nd Fighter Group OANG
Portland International Airport, Portland, Oregon

Analyte	Practical Detection Limit (µg/L)
Antimony	6
Arsenic	10
Beryllium	4
Cadmium	5
Chromium	10
Copper	25
Lead	3
Mercury	0.2
Nickel	40
Selenium	5
Silver	10
Thallium	2
Zinc	20

Sample PDLs are highly matrix-dependant. The PDLs listed herein are provided for guidance and may not always be achievable.
OANG - Oregon Air National Guard.
µg/L - microgram/liter.

4.4 SAMPLE COLLECTION, PRESERVATION, AND HOLDING TIMES

Procedures for collecting soil and groundwater samples will follow the RI Work Plan (WP), and will conform to USEPA protocols. The Field Team Leader is responsible for ensuring that samples are collected with properly decontaminated equipment and contained in properly cleaned sample containers. The steps required for sample control and identification, data recording, and chain-of-custody documentation are discussed in Section 6 of the QAPP and SOPs located in Appendix C.

Prior to the beginning of each type of sampling event, the Field Team Leader will meet with the assigned sampling personnel and review the purpose and objectives of the event. This meeting will provide final clarification of the sampling event details. Topics of review and discussion will include items such as sampling locations, types of samples to be collected, number of samples to be collected, sample numbering, parameter(s) to be analyzed, sampling procedures, equipment decontamination procedures, and chain-of-custody requirements.

Equipment decontamination is an integral part of the data collection and quality assurance process. The implementation of proper decontamination practices and procedures will begin in the field prior to the use of sample collection equipment. All field sampling equipment will be decontaminated before use and after each sample location, in accordance with SOP No. 7 located in Appendix C.

Sample containers and preservatives used to collect and contain samples designated for chemical analysis generally will be provided by the laboratory performing the analysis. The preferred container types will be I Chem Series 300 Bottles or equivalent. The bottles must be pre-cleaned and traceable to the laboratory that performed the cleaning. The lot number of the containers and reagents used for preservatives must be traceable to the laboratory (or supplier) that performed the initial assay. Certificates of cleanliness must be provided by the laboratory (or supplier) and kept in the project file.

All samples for chemical analysis will be placed on ice as soon as possible following collection. All samples will be chilled to 4°C ± 2°C and maintained at that temperature through transport and subsequent storage at the analytical laboratory. This applies to all samples with exception of aqueous metal samples. In no case will samples be retained over 48 hours on site. Holding times, sample volumes and preservative requirements for fixed-base and field laboratories are shown in Tables 4.6A and B. Samples analyzed by the field laboratory will not require acid preservation but will be maintained at 4°C.

Table 4.6A
Fixed-Base Laboratory Volumes, Containers, Preservation, and Holding Summary of Samples
142nd Fighter Group OANG
Portland International Airport, Portland, Oregon

Parameter	Matrix	Holding Time (from time of collection)	Container	Preservative	Minimum Sample Size
Volatile organics SW-846 Method 8260	Water	14 d	Three 40-mL vials with Teflon-lined caps, brass or Teflon core tube sealed on both ends	4°C , HCl to pH < 2	40 mL
	Soil			4°C	10 g
Extractable organics SW-846 Method 8270	Water	7 d extn. 40 d anal.	1-L glass with Teflon liner, glass jar with Teflon liner or core tube	4°C	1000 mL
	Soil	14 d extn. 40 d anal.		4°C	50 g
Metals (other than mercury) SW-846 Method 6010/7000 Series	Water	180 d	Plastic, glass	HNO_3, to pH<2	100 mL
	Soil			4°C	10 g
Mercury SW-846 Methods 7470 (water) & 7471 (soil)	Water	28 d	150 mL glass	HNO_3, to pH < 2	150 mL
	Soil		500 mL plastic	4°C	1 g
Petroleum hydrocarbons as gasoline Modified Method 8015	Water	14 d	Two 40-mL vials w/Teflon liners	4°C, HCl to pH<2	40 mL
	Soil		Core tube	4°C	50 g
Petroleum hydrocarbons as diesel and jet fuel Modified Method 8015	Water	14 d extn. 40 d anal.	1-L glass	4°C	500 mL
	Soil		Core Tube		50 g

Notes:

extn=time to extraction.
anal=time to analysis.
mL = milliliter.
NA=not applicable.
HCL = Hydrochloric Acid.
°C = degrees Celsius.
g = gram.
d = day.
L= Liter.
HNO_3 = Nitric Acid.

Table 4.6B
Field Laboratory Volumes, Containers, Preservation, and Holding Summary of Samples
142nd Fighter Group OANG
Portland International Airport, Portland, Oregon

Parameter	Matrix	Holding Time (from time of collection)	Container	Preservative	Minimum Sample Size
Volatile organics SW-846 Method 8260	Water	7 d	Three 40-mL vials with Teflon-lined caps, brass or Teflon core tube sealed on both ends	4°C	40 mL
	Soil	7 d		4°C	10 g
Extractable organics SW-846 Method 8270	Water	7 d extn. 40 d anal.	1-L glass with Teflon liner, glass jar with Teflon liner or core tube	4°C	500 mL
	Soil	14 d extn. 40 d anal.		4°C	50 g

Notes:

extn=time to extraction.
anal=time to analysis.
mL = milliliter.
°C = degrees Celsius.
g = gram.
d = day.

SECTION 5.0 PRECISION, ACCURACY, REPRESENTATIVENESS, COMPARABILITY, COMPLETENESS, AND SENSITIVITY OBJECTIVES

This section presents general objectives for the level of quality control expressed as PARRCS for the analytical data. The accuracy, precision, and sensitivity of laboratory analytical data must satisfy the quality control acceptance criteria of the analytical protocols for approved USEPA methods in the fixed-base laboratory and project specific requirements for the field laboratory.

5.1 QUALITY ASSURANCE OBJECTIVE FOR ACCURACY

Accuracy is defined as the degree of difference between measured or calculated values and the true value. The closer the numerical value of the measurement comes to the true value, or actual concentration, the more accurate the measurement. Analytical accuracy is expressed as the percent recovery of a compound or element that has been added to the environmental sample at a known concentration before analysis. The following equation is used to calculate percent recovery:

$$Accuracy = Percent\ recovery = \frac{A_r - A_o}{A_f} \times 100\ percent$$

Where:

A_r = Total amount detected in spiked sample
A_o = Amount detected in unspiked sample
A_f = Amount of spike added to sample

5.1.1 Organic Analysis Accuracy

Analytical accuracy will be ensured by performing all method specified and project modified quality control steps. Surrogate recoveries will be monitored for method compliance for all analysis in the field and fixed-base laboratory with the exception of TPH. Table 5.1 lists the surrogate recovery acceptance criteria for all organic parameters requiring surrogate additions (VOC, SVOC, and PCB) .

Table 5.1
Field and Fixed-Base Laboratory Objectives for Accuracy of Surrogate Spike Analysis
142nd Fighter Group, OANG,
Portland International Airport, Portland, Oregon

Fraction	Surrogate Compound	Water % Recovery Limits	Low/Med Soil % Recovery Limits
VOA	4-Bromofluorobenzene	86-115	74-121
VOA	Dibromofluoromethane	86-118	80-120
VOA	Toluene-d_8	88-110	81-117
SVOA	Nitrobenzene-d_5	35-114	23-120
SVOA	2-Fluorobiphenyl	43-116	30-115
SVOA	p-Terphenyl-d_{14}	33-141	18-137
SVOA	Phenol-d_5	10-110	24-113
SVOA	2-Fluorophenol	21-110	25-121
SVOA	2,4,6-Tribromophenol	10-123	19-122
PCB	Decachlorobiphenyl	60-150	60-150

VOA = Volatile Organic Analysis.
SVOA = Semivolatile Organic Analysis, SOW 3-90.
PCB = Polychlorinated Biphenyl.
Note: These limits are for advisory purposes only. They are not used to determine if a sample should be reanalyzed.
Source: USEPA, 1986.

Analytical accuracy will be ensured by performing all method specified and project modified quality control steps. Surrogate recoveries will be monitored for method compliance for all analysis in the fixed-base laboratory with the exception of TPH. Table 5.1 lists the surrogate recovery acceptance criteria for all organic parameters requiring surrogate additions (VOCs, SVOCs and PCBs) .

In addition to surrogate recoveries, fixed base laboratory accuracy for VOC, SVOC and TPH analysis will be evaluated by analyzing a matrix spike/matrix spike duplicate (MS/MSD) sample at a minimum frequency of 1 per 20 samples of similar matrix or every 14 days which ever is more frequent. Table 5.2 lists spike compounds and recovery criteria for MS/MSD samples in the fixed-base laboratory for SVOCs and VOCs. TPH advisory limits will be established by the fixed-base laboratory through the use of control charting.

The general objective for analytical accuracy for organic analysis is to meet 90% of all surrogate compound recoveries (Table 5.1) and MS/MSD recoveries (Table 5.2).

5.1.2 Inorganic Analysis Accuracy

Metals accuracy will be monitored by analyzing a matrix spike sample and a LCS with every sample delivery group. The matrix spike recoveries should not exceed 75-125% for any metal analyzed and LCS recoveries should not exceed 80-120%. The overall goal for inorganic analytical accuracy is to meet 90% of all matrix spike, and LCS recoveries.

5.2 QUALITY ASSURANCE OBJECTIVE FOR PRECISION

Precision is defined as the reproducibility, or degree of agreement, among duplicated (collocated) sample measurements of the same quantity. The closer the numerical values of the measurements come to each other, the more precise the measurement is. Analytical precision is expressed as a percentage of the difference between results of duplicate samples for a given compound. Relative percent difference (RPD) is calculated as:

$$RPD = \frac{|C_1 - C_2|}{\left(\frac{C_1 + C_2}{2}\right)} \times 100$$

Table 5.2
Quality Assurance Objectives for Field and Fixed-Base Laboratory
Accuracy and Precision of Matrix Spike/Matrix Spike Duplicate Analysis
142nd Fighter Group, OANG,
Portland International Airport, Portland, Oregon

Fraction	Matrix Spike Compound	Water		Soil	
		RPD	Percent Recovery Limits	RPD	Recovery Limits
VOA	1,1-Dichloroethene	19	60-136	22	59-172
VOA	Trichloroethene	17	68-138	24	62-137
VOA	Chlorobenzene	17	68-136	21	66-142
VOA	Benzene	22	73-144	21	59-139
VOA	Toluene	17	68-138	21	60-133
SVOA	Acenaphthene	31	46-118	19	31-137
SVOA	1,4-Dichlorobenzene	28	36-97	27	28-104
SVOA	2,4-Dinitrotoluene	38	24-96	47	28-89
SVOA	n-Nitroso-di-propylamine	38	41-116	38	41-126
SVOA	Pyrene	31	26-127	33	35-142
SVOA	1,2,4-Trichlorobenzene	28	39-98	23	38-107
SVOA	4-Chloro-3-methylphenol	42	23-97	33	26-103
SVOA	2-Chlorophenol	40	27-123	50	25-102
SVOA	4-Nitrophenol	50	10-80	50	11-114
SVOA	Pentachlorophenol	50	9-103	47	17-109
SVOA	Phenol	42	12-110	35	26-90

Fractions: VOA = Volatile Organic Analysis.
SVOA = Semi-Volatile Organic Analysis.
PCB= Polychlorinated biphenyls

RPD = Relative Percent Difference.

Source: USEPA, 1986.

Where

C_1 = Concentration of the compound in the sample

C_2 = Concentration of the compound in the duplicate/replicate

Sample collection precision will be measured in the laboratory by the analysis of field duplicate samples. Sample collection precision criteria will be twice the analytical precision criteria.

The overall goal for precision is for 90 percent of all data generated by laboratory methods to be within required or method-recommended control limits.

5.2.1 Organic Analysis Precision

Precision of field and fixed-base laboratory VOC, and SVOC analysis will be monitored using MS/MSD RPD values (Table 5.2) . TPH precision will be monitored using matrix spike and matrix spike duplicate analysis of a fuel standard. The advisory precision limits should not exceed 15% RPD for TPH. PCB precision will be monitored using the RPD of the initial calibration and calibration verification response of decachlorobiphenyl (DCB). The RPD of DCB should not exceed 25%.

5.2.2 Inorganic Analysis Precision

Metals precision is assessed using an environmental sample analyzed in duplicate with every sample delivery group. The relative percent difference should not exceed 20% for water samples or 35% for soil samples with duplicate sample values greater than or equal to 5X PDL. A control limit of ± PDL is used if either the sample or duplicate value is <5X PDL.

5.3 QUALITY ASSURANCE OBJECTIVES FOR SENSITIVITY

Sensitivity is the limits of detection for instrumental and chemical analysis. The achievement of method detection limits depends partially on instrument sensitivity to ensure the data quality through constant instrument performance. Quantitation limits for trace metals, PCBs, SVOCs, VOCs, and TPH are listed in Tables 4.1 through 4.5 for field and fixed-base laboratory analysis. All soil/sediment samples will be reported on a dry weight basis. The quantitation limits presented in Tables 4.1 through 4.5 for soils/sediments will be adjusted based on the moisture content of each sample.

5.4 QUALITY ASSURANCE OBJECTIVES FOR COMPLETENESS, REPRESENTATIVENESS, AND COMPARABILITY

Completeness is defined as the amount of valid (useable) data obtained compared to the planned amount and is expressed as a percentage of measurements judged to be valid. The percent of completeness for analytical data can be expressed by the following formula:

$$Completeness = \frac{Number\ of\ useable\ valid\ data\ points\ reported}{Total\ number\ of\ analytes\ for\ each\ parameter\ analyzed} \times 100$$

The completeness goal for the fixed-base and field analysis is 90%.

Representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Representativeness is a qualitative parameter dependent on the proper design of the sampling program and proper laboratory protocol. The sampling networks all designed to provide data representative of facility conditions. During development of these networks, consideration was given to past waste disposal practices, existing analytical data, physical setting and processes. Representativeness will be ensured by using proper sampling techniques, and using analytical procedures. Representativeness is ensured in the laboratory by proper sample storage, analysis, extraction, and digestion within the proper required holding times, acceptable instrument calibration and operation.

Comparability is a qualitative parameter that expresses the confidence with which one data set can be compared with another, and is limited to the other parameters, because only when precision and accuracy are known, can data be compared with confidence. The extent to which existing and planned analytical data will be comparable depends on the similarity of sampling and analytical methods. The procedures used to obtain the planned analytical data, as documented in the QAPP, are expected to provide comparable data. Field and laboratory procedures greatly affect comparability. To optimize comparability, only specific methods and protocols that have been selected, specified as appropriate, and modified as necessary for the RI will be used. By using consistent sampling and analysis procedures, all data sets will be comparable within a specific site and between sites at the installation to ensure that remedial action decisions and priorities are based on a consistent data base. Comparability will be

further ensured by the analysis of USEPA standard reference materials, establishing that analytical procedures are generating valid data.

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SECTION 6.0 SAMPLE IDENTIFICATION AND CHAIN-OF-CUSTODY REQUIREMENTS

Sample chain-of-custody (COC) procedures require a written record which documents the possession and handling of the sample from the moment of its collection through its analysis. The record must clearly reflect the movement of the sample through the chain-of-custody to ensure the sample has been positively controlled and has not been tampered with in any way. A sample is judged in positive custody when one of the following criteria has been met:

- The sample is in one's actual physical possession;
- The sample is in one's clear field of view after being in one's physical possession;
- The sample is in one's physical possession and is then locked up in a secure container so that no one can tamper with it; or
- The sample is kept in a secured area that is restricted to authorized personnel only.

6.1 SAMPLE IDENTIFICATION

A standardized numbering system will be used to identify all samples taken from water and soil sampling activities. The numbering system provides a tracking procedure to ensure accurate data retrieval of all samples taken. A listing of the sample identification numbers will be maintained by the field task leader, who will be responsible for enforcing the use of the standardized numbering system during all sampling activities. Sample identification for all samples collected during the RI will follow the following format.

This code consists of 10 alphanumeric characters in four information groups:

- Site designator (two characters)
- Sample type (two characters)
- Sample identifier (four characters)
- Sample sequence qualifier (two characters)

If no information is required for a particular sample, the spaces must be filled with an "X". If only one character is needed in the multi-character fields, the character must be right-justified and the leading spaces filled with an "X".

6.1.1 Site Designator

All samples collected in this field effort will be identified by a 10-character code beginning "OB" which signifies Oregon Base.

6.1.2 Sample Type

The two-character sample type code identifies the general source type and media of the sample. Sample type codes that may be applicable to this field project are as follows:

- BG Background sample;
- DS Soil sample from drum containing cuttings;
- DW Decontamination water;
- EB Equipment blank;
- FB Field blank;
- GS Groundwater grade sample;
- GW Groundwater permanent monitoring well;
- MS Groundwater microwell sample;
- RS Field duplicates;
- SD Sediment;
- SS Surface soil;
- SU Subsurface soil;
- SW Surface water;
- TB Trip blank; and
- VP Groundwater vertical profile sample.

6.1.3 Sample Identifier

The third segment will consist of 4 digits. The first 2 digits will identify the site number. The second 2 will designate the soil boring or monitoring well identification number.

6.1.4 Sample Sequence Qualifier

The last set of two digits will sequentially identify the vertical samples taken from a single location.

6.2 SAMPLE LABELS

All samples will be identified with a label attached directly to the container and bar codes scanned into a sample tracking database. Sample label information will be completed using waterproof black ink and will contain the following information:

- Company name and site;
- Sample number;
- Parameters to be analyzed; and
- Preservative (if any).

Sample bar code information will contain sample identification (ID) only. The data evaluation manager will be responsible for obtaining a copy of the COC and entering collection date, analytical parameters, and location coordinates into the database.

6.3 CHAIN-OF-CUSTODY (COC) RECORD

To maintain a record of sample collection, a COC custody record will be filled out for each sample destined for mobile and fixed-base analysis at each sampling location, for the transfer of samples between sample custodians, shipment, and receipt by the laboratory. A copy of the standard subcontractor's COC record is shown in Figure 6.1. Sample COC procedures require that the possession and handling of the sample from the moment of its collection through analysis be documented by written record. The record must clearly reflect the movement of the sample through the COC to ensure the sample has been positively controlled and has not been tampered with in any way. Each time the samples are transferred, the signatures of the persons relinquishing and receiving the samples, as well as the date and time of transfer, will be documented.

6.4 TRANSFER OF CUSTODY AND SHIPMENT

Prior to the shipment of samples, the COC record will be signed and dated by a member of the field team who has verified that those samples indicated on the COC record are indeed being shipped. After packaging has been completed, the samples will be locked within the cooler, and custody seals, signed and dated by a member of the field team, will be placed over the lid edge for fixed-base laboratory samples. Field laboratory samples will be delivered without custody seals.

Page ___ of ___ Pages

CHAIN-OF-CUSTODY AND LAB REQUEST WORK FORM

Project Number:	Client/Project Name:	Project Location:

Field Sample No./ Identification	Date and Time	Grab	Composite	Sample Container (Size/Material)	Sample Type (Liquid, Sludge, Etc.)	Preser-vative	PCM	TEM	PLM	TPH	BTEX	TCLP	LEAD	BENZENE	PCB	TOX	VOC	Other	Lab Remarks

Samples (Signature)	Relinquished By: (Signature)	Date: Time:	Received By: (Signature)	Date: Time:	Intact:
OpTech Point of Contact	Relinquished By: (Signature)	Date: Time:	Received By: (Signature)	Date: Time:	Intact:
	Relinquished By: (Signature)	Date: Time:	Received By: (Signature)	Date: Time:	Intact:
SAMPLER REMARKS: Container Seal No.2			Received for Lab.: (Signature) Data Results To:	Date: Time:	Lab. No.

September 1991

FIGURE 6.1

POETLAND\CHAIN

SAMPLE CHAIN-OF-CUSTODY FORM (REDUCED)
142nd FG, Portland International Airport
Portland, Oregon

OPTECH OPERATIONAL TECHNOLOGIES CORPORATION

OCTOBER 1995

All samples will be shipped by courier, such as Federal Express, or hand delivered by the subcontractor's personnel to the field analytical laboratory. Confirmation samples will be transported, generally each day, by field personnel from the Base to the courier location for subsequent shipment to the laboratory or hand carried to the mobile laboratory. Upon receipt of the samples at both of the laboratories, the receiver will complete the transfer by dating and signing the COC record. If shipped by commercial courier, the air bill number and shipping data will be transcribed to the chain of custody in the appropriate signature/date block. A copy of the air bill is to be kept with the field copy of the COC form to reflect specific shipping information.

6.5 LABORATORY SAMPLE RECEIVING AND STORAGE

- Upon receipt, the sample custodian will inspect sample containers for integrity. The presence of leaking or broken containers will be noted on the laboratory's Sample Receipt Form. The sample custodian will sign the COC record with the date and time of receipt, thus assuming custody of the samples.

- The information on the COC record will be compared with the information on the sample tags and labels to verify exact sample identity. Any inconsistencies will be immediately resolved with the field sampling representative before sample analysis proceeds.

- Samples will be moved to a locked restricted access sample storage refrigerator maintained at 4°C ± 2°C. The laboratory is required to document all internal custody transfers.

- The laboratory will submit copies of appropriate COCs with each data package and return original COCs at the end of the project.

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SECTION 7.0 DOCUMENTATION PROCEDURES

Individual logbooks will be bound notebooks with water-resistant or waterproof pages, and sequentially numbered by either mechanical overprint or handwritten entry. All entries will be legible and made with black, waterproof ink. No pages will be removed from a logbook. For any page partially filled with an entry, a line will be drawn diagonally from below the last line entry to the bottom of the page. Blank pages will be identified by writing "page intentionally left blank". Individuals making entries will sign and date the bottom of each page of the respective logbooks. Corrections will be marked through with a single line, initialed, and dated. No "white-out," erasure, or other obliteration will be accepted.

7.1 SITE LOGBOOKS

The Field Team Leader will maintain a Site Logbook which summarizes daily field activities, but does not contain the same level of detail as the field logbook. The Site Logbook will be used to record daily weather conditions, personnel, activities, and references the appropriate field logbooks and data forms for various field activities. It will also be used to record all field changes in scope with supporting rationale.

The following entries, as a minimum, will be included in the Site Logbook:

- Day; date; time arrived on-site; time daily activities completed; weather conditions; names, titles, and organizations of personnel present on-site; and individuals responsible for maintaining respective field logbooks.

- Name, title, and organization of visitors on-site.

- Reference to other logbooks or field data forms maintained for documentation of field activities.

- Brief description of daily site activities, i.e., location, volume, number, amount, etc.

- Records of all custody and transfer details, including air bill numbers, analytical request forms, chain-of-custody forms, sample label numbers, and laboratories to which samples were shipped, or reference to applicable field logbooks containing specific information.

- List of equipment decontaminated, number of decontamination events, and exceptions to approved procedures, if necessary. In lieu of recording this information, specific field logbook(s) documenting these activities will be referenced.

- List of instrument calibrations, calibrating personnel, and page number(s) of the calibration log.

- List of equipment malfunctions or breakdowns occurring along with disposition, i.e., repair, replacement, etc., along with effect on overall project.

- Record of deviations from scope of work plan. If a Field Change Request (FCR) is used, record number; otherwise, record details and effect on overall project.

- Record of all telephone calls relating to field activities.

7.2 FIELD LOGBOOKS

All data collection activities performed at a site will be documented using waterproof, indelible black ink, in a field notebook or on the COC forms. Field notebooks will be bound, waterproof books, and will be assigned to individual field personnel for use during the duration of their field activities. Entries will be as detailed and as descriptive as possible so that a particular situation can be recalled without reliance solely on the sampler's memory. All field log activities will be dated and signed by the person making the entries. If an incorrect entry is made in any type of data document, the incorrect data will be lined out with a single line, the correct information entered, and the correction initialed and dated by the person making the correction. Like original entries, corrections will be made in indelible black ink. At the end of each day, all logbooks may be requested to be turned in to the Field Team Leader so that he may assess the entries for completeness.

The Field Team Leader will designate a member of the field team to photocopy, at the end of each day, all field logs (notebook pages and standard forms) generated during that day. At the completion of a work shift, all field logs, and notebook pages, and standard forms will be entered into the project files. All copies of field logs and standard forms will be transported and stored off-site at the completion of each work shift.

The following entries, as a minimum, will be included in the field logbook:

- Day; date; time arrived on-site; time daily activities completed; weather conditions; and names, titles, and organizations of personnel involved in the task.

- Name, title, and organization of visitors on-site.

- Specific description of all activities in detail, or reference to forms used to record applicable information.

- Specific details of field tests conducted with references to field data forms or other data records completed.

- Volumes of water purged, number of drums filled, etc.

- Specific descriptions of samples collected, listing label numbers, sample containers, and volumes, preservation methods, packaging, chain-of-custody form number(s), and any other pertinent information available.

- List of decontamination events, including personnel, time, equipment, and procedures.

- List of instrument calibrations including a description of any problems encountered.

- List of equipment malfunctions including a brief description of dispositions, i.e., repair or replacement.

7.3 FIELD DATA RECORD FORMS

Data record forms will be used for applicable field activities. These forms will ensure that all required data and observations were recorded in a consistent manner. No blank spaces will be left; all non-applicable items will be marked "N/A". Pertinent forms include:

- Daily Field Report;
- Field Change Request;
- Various Field Instrument Calibration Logs;
- Investigation-Derived Waste Log;
- Water Level Measurement Log;
- Copies of COC Records;
- Drum/Content Identification Form; and
- Daily Decontamination Water Disposal Log, if applicable.

7.4 FINAL EVIDENCE FILE DOCUMENTATION

Records will be kept by the Field Team Leader to document the quality assurance/quality control activities and to provide support for possible evidential proceedings. The following outline of project file requirements applies:

- Communications
  - -- Internal
  - -- External
- Quality Assurance/Quality Control
  - -- Procedures
  - -- Chain-of-Custody
  - -- Audit Reports
  - -- Laboratory Quality Assurance Reports
  - -- Deviation Notification Forms
  - -- Nonconformance/Corrective Action Reports
- Technical Information
  - -- Analytical Data
  - -- Field Data
  - -- Site Logbook
  - -- Field Logbooks

  - -- Field Data Record Forms
  - -- Graphic Resources
  - -- Data Quality Acceptance
  - -- Calculations/Evaluations
  - -- Regulatory Compliance
- Project Management
  - -- Project Schedule
  - -- Budget
  - -- Site Database Information
- Health and Safety
  - -- Plans/Procedures
  - -- Audit Reports
- Documents
  - -- Plans
  - -- Reports
  - -- Relevant Publications

All evidential file documentation will be maintained by the subcontractor under its internal project file system. Upon completion of the project, all records will be delivered to the HAZWRAP Project Manager. Copies of all records will be maintained by the subcontractor for project continuity. The Field Team Leader will ensure that the quality assurance/quality control records are properly stored and retrievable.

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SECTION 8.0 QUALITY CONTROL FOR FIELD MEASUREMENT DATA

Most data derived for the RI will be developed in the analytical laboratories from the samples collected in the field. However, groundwater sample measurements such as specific conductance, temperature, turbidity, pH, and health and safety monitoring will be performed and recorded in the field. The primary quality assurance objectives of field activities where measurements will be taken are to verify that quality control checks are performed, to verify that measurements were obtained to the degree of accuracy consistent with their intended use, and to provide documentation of adherence to the measurement procedures.

Measurement data will be generated in many field activities including the following:

- Documenting measurement times and weather conditions;
- Locating and determining elevations of sampling locations;
- Using a PID or an OVA to make qualitative organic vapor screening measurements from samples prior to disposal segregation or health and safety monitoring; and
- Measuring pH, conductivity, turbidity, and temperature.

The instruments will be calibrated according to manufacturers' specifications before and after each field use, or as otherwise required. Where necessary, instruments will be calibrated each day during field use.

8.1 SURVEYING

Surveying of all well and soil boring locations at the Base will be conducted to provide a common frame of reference for RI activities. All proposed sample locations will be flagged and surveyed prior to the beginning of the sampling effort. Surveying will be performed by a surveyor registered in the State of Oregon. All samples collection locations, including soil, sediment, surface water, and groundwater, will be surveyed for X, Y and Z coordinates. Surveying will be completed to an accuracy of ± 0.1 foot horizontally and ± 0.01 foot vertically.

All bench marks used will be traceable to a United States Geological Survey (USGS) survey marker.

8.2 ORGANIC VAPOR ANALYZER (OVA)

The OVA or flame ionization detector (FID) is calibrated to a methane standard daily following the manufacturer's specified procedures. The instrument's operation and calibration are checked periodically each sampling day using a solvent-based felt-tip pen, or flammable organic, noting needle deflection (Table 8.1).

8.3 SPECIFIC CONDUCTANCE METER

Calibration is performed at the start of each sampling day using a standard solution of potassium chloride. Adjustment knobs on the meter will be used to set the meter to read the value of the standard. The meter must read within 10% of the standard to be considered in control and should read within 5% (7% is considered a warning level). If the calibration indicates the meter is out of control, a backup unit should be employed; if one is not available, the data will be flagged to note the percent difference between the meter and the standard calibration solution. Readings from conductivity meters lacking calibration adjustments are normally stable; thus, calibration checks are usually limited to checks at the beginning and the end of the sampling day.

8.4 pH METER

Calibration is performed at the start of each sampling day using National Bureau of Standards traceable buffer solutions which bracket the pH range expected in the samples. Calibration knobs are used to set the meter to read the value of the standard. The meter is then checked during the sampling period, using at least one standard, at a frequency which results in little or no calibration adjustment. If the reading varies more than one-tenth of a unit between calibration checks, the frequency of the checks must be increased.

8.5 TEMPERATURE METER

Temperature is measured either using a thermistor built into the specific conductance meter, or by a separate thermometer unit. In all cases, the readings will be checked at least once per field trip using a analytical grade laboratory thermometer (preferably National Bureau of Standards traceable) thermometer. The frequency of calibration, however, is a minimum; should the unit experience erratic or out-of-tolerance readings, additional checks will be performed. Technicians should be especially mindful of subjecting the unit to harsh conditions (e.g., shock, extreme cold, etc.).

8.6 TURBIDITY METER

Calibration is performed at the start of each days sampling event and confirmed before the start of each new well. Calibration is achieved by immersing the probe of the turbidity meter into a clean beaker three quarters full of deionized water and adjusting the turbidity meter readout to a zero reading. Should a calibration check fail to indicate a zero reading, the turbidity probe must be deconned again and a fresh deionized water will be used. If this second check still indicates an above zero reading, the meter may be adjusted to a zero readout.

8.7 DISSOLVED OXYGEN

Dissolved oxygen (DO) content of groundwater samples will be measured in the field using a commercially available test kit. Hach brand test kit 46700-03 or an equivalent colorimetric test kit will be employed with AccuVac or equivalent sampling methods. The analysis will be capable of reporting DO in the range of 0-10 mg/L with reporting increments of 0.1 mg/L. Oxygen (O_2) content of soil gas will be measured using portable industrial hygiene-type equipment (Bacharach LEL-02-PPM or equivalent). The O_2 content of soil gas will be reported in percent O_2 by volume. The reporting range of the instrument is 0-25% O_2 with 0.1% reporting accuracy. Manufacturer recommended reagent handling and storage instructions will be followed. All reagents will be purchased with documented standard accuracy.

8.8 CARBON DIOXIDE

Carbon dioxide, CO_2, concentration of groundwater samples will measured in the field using Hach brand test kit 20341-00 or an equivalent digital titration method . The reporting range is 10-1000 mg/L of CO_2. Oxygen content of soil gas will be measured using portable equipment with a infrared detector. A Riken RI-411 CO_2 Analyzer or equivalent equipment will be used. Measurements of 0-4975 PPM CO_2 may be reported in 25 PPM will increments. Manufacturer recommended reagent handling and storage instructions will be followed. All reagents will be purchased with documented standard accuracy.

8.9 NITRATE, NITRITE, AMMONIA, AND PHOSPHORUS (TOTAL AND REACTIVE)

Due to the variety of parameters (nitrate, nitrite, ammonia, and phosphorus) and the equipment and reagents required to analyze these parameters, field measurement quality data will be generated at the fixed-base laboratory for up to four soil and four groundwater samples at each site. Samples will be collected and shipped to the fixed-base laboratory for field measurement quality analysis and results only reported for the above parameters. Method detection limits, sample volumes, holding times and preservation requirements are listed in Table 8.2. No field QC samples or extra volumes of environmental samples for laboratory QC will be collected. Sample quantities listed in Table 8.2 are approximate.

Table 8.1
Field Measurement Equipment Calibration Frequency
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

Instrument	Calibration Standard	Frequency	Tolerance
OVA	10 PPM methane	Daily	NA
Specific Conductance Meter	KCl	Daily	± 10%
pH Meter	NBS traceable standards	Minimum of twice daily	0.1 pH units
Temperature Meter	NBS traceable thermometer	Prior to first measurement after mobilization of field effort	1° C
Turbidity Meter	Standard turbidity suspension	Prior to first measurement and after every well	±3 NTU

OVA = Organic vapor analysis.
PPM = parts per million.
° C = degrees Celsius.
KCl = Potassium chloride.
NA = Not Applicable.
NBS = National Bureau of Standards.

Table 8.2
Field Measurement Data for Fixed-base Laboratory Analysis
Detection Limits, Volumes, Containers, Preservation, and Holding Summary
142nd Fighter Group OANG
Portland International Airport, Portland, Oregon

Parameter	Matrix	Quantity	Method	Practical Detection Limit	Holding Time (from time of collection)	Container	Preservative
Nitrate	Water	43	MCAWW* 353.2**	0.10 mg/L	48 h	100-mL P	Cool, 4°C
	Soil	36		5.0 mg/kg		500-mL P	
Nitrite	Water	43	MCAWW* 353.2**	0.050 mg/L	48 h	100-mL P	Cool, 4°C
	Soil	36		5.0 mg/kg		500-mL P	
Ammonia	Water	43	MCAWW* 350.3**	0.050 mg/L	28 d	100-mL P	Cool to 4°C, H_2SO_4 to pH<2
	Soil	36		0.50 mg/kg		500-mL P	
Phosphate, reactive	Water	43	MCAWW* 365.2**	0.10 mg/L	48 h	100-mL P	Filter immediately, cool to 4°C
	Soil	36		1.0 mg/kg		500-mL P	Cool to 4°C
Phosphorus	Water	43	MCAWW* 365.4**	0.10 mg/L	28 days	250-mL P	Cool to 4°C, H_2SO_4 to pH<2
	Soil	36		25 mg/kg		250-mL P	

*MCAWW=Methods for Chemical Analysis of Water and Wastes
**Field parameters will be based on USEPA approved methods listed but will not adhere to definitive level data analysis requirements. Soil extraction will be required for all soil/sediment samples.
extn=time to extraction
°C = degrees Celsius
anal=time to analysis
g = gram
mL = milliliter
d = day
h = hour
P = Plastic
NA = Not applicable

SECTION 9.0 DATA REDUCTION, SUBSTANTIATION, AND REPORTING

Data reduction is the process of converting raw data to a useable format. Data substantiation is a mixture of verification and evaluation procedures which assess the useability of data at an intended data quality level or DQO.

9.1 FIELD AND TECHNICAL DATA

The field and technical (non-laboratory) data that will be collected during the RI can generally be characterized as either objective or subjective data. Objective data include all direct measurements, such as field screening/analytical parameters and water level measurements. Subjective data include activity descriptions and observations.

9.1.1 Field and Technical Data Reduction

All field data will be recorded by field personnel in bound field notebooks and on standard forms. For example, during RI field activities, the field team member supervising the drilling and/or sampling activities will keep a chronological log of activities, a vertical descriptive log of lithologies encountered, other pertinent information (staining, odors, field screening, working conditions, water levels, etc.), and a labor and materials accounting in his/her bound notebook. The Field Team Leader may choose to appoint a team member to photocopy all field logs (including notebook pages and standard forms) generated in a given field day. Copies will be given to the Field Team Leader who will maintain all field log files. At the direction of the Field Team Leader, copies of all field logs, notebook pages, and standard forms will be returned to the field office for entry into project files.

After checking the validity of data in the field notes and on standard forms, the Field Team Leader will be responsible for entering pertinent data into data files. Where appropriate, the data files will be set up for direct input into the project data base. Subjective data will be filed as hard copies for later review by the Project Manager and Field Team Leader for incorporation into technical reports as appropriate.

9.1.2 Field and Technical Data Substantiation

Substantiation of field activities is primarily a verification that proper procedures were followed while taking measurements related to samples, locations and survey information, etc.

Typical measurements include:

- Soil sample location measurement;
- Water level measurements;
- OVA/PID readings; and
- pH, temperature, turbidity, and specific conductance.

Field measurements are considered valid provided that:

- Calibration records for field measurement equipment are properly maintained;

- Training records exist which document that field personnel are familiar with standard procedures for taking measurements; and

- Verification that calculations and observations are accurately recorded and transcribed.

Substantiation of objective field and technical data will be performed at two different levels. On the first level, data will be substantiated at the time of collection by following standard procedures and quality control checks. At the second level, data will be substantiated by the Field Team Leader, who will review the data to ensure that the correct codes and units have been included. After data reduction into tables or the project data base, the Field Team Leader will review data sets for anomalous values. Any inconsistencies or anomalies discovered will be resolved immediately, if possible, by seeking clarification from field personnel responsible for collecting the data. Subjective field and technical data will be substantiated by the Field Team Leader, who will review field reports for reasonableness and completeness. In addition, random checks of sampling and field conditions will be made by the Field Team Leader and Quality Assurance Manager who will check recorded data at that time to confirm the recorded observations. Whenever possible, peer review will also be incorporated into the data substantiation process, particularly for subjective data, to maximize the consistency among field personnel. For example, during RI field activities, the Project Manager will schedule periodic

reviews of archived lithologic samples to ensure the proper lithologic descriptions and codes have been consistently applied by field personnel.

9.2 LABORATORY DATA VERIFICATION

All data collected during the remedial investigation will be internally verified by the Analytical Services Manager by reviewing the data packages for method QC compliance including calibration frequency and acceptance criteria, method blank analysis, and matrix spike analysis. The Analytical Services Manager will also review sample analyses within holding time and turn-around time requirements, and complete sample analysis against the COC.

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SECTION 10.0 ANALYTICAL DATA REPORTING AND VALIDATION

10.1 FIELD LABORATORY DATA REPORTING AND VALIDATION

10.1.1 Hard Copy Data

Field laboratory analytical results will be reported as soon as results are available, typically within 48 hours of sample receipt for soils and 24 hours from sample receipt for water samples. The complete data package including laboratory QC results will be due within 30 days of sample receipt. At a minimum, the following will be reported for the quick turn results:

- Laboratory name and address;
- Analyst;
- Sample ID as provided by the field team;
- Sample ID assigned by the laboratory;
- Data and time of sample receipt;
- Sample X, Y and Z coordinates;
- Date and time of analysis;
- Type of sample (water/soil);
- Type of analysis/method number;
- Concentration of compound detected;
- Detection limit of compounds not detected;
- Sample weight/volume;
- percent moisture (dry weight calculations for soils);
- Dilution factor; and
- Comments or remarks.

Thirty days after sample receipt, the mobile laboratory will be required to submit a data package containing all laboratory deliverables listed in Table 10.1 to the Subcontractor Analytical Services Manager for verification. This data package must contain all CLP forms listed in Table 10.1. The data will be verified by the Subcontractor chemist.

The field laboratory will be required to maintain all sample analysis information data including but not limited to standards and instrument log books, all CLP-type summary forms and all raw data for the entire field effort. The field laboratory will archive all information and data

Table 10.1
Field Laboratory Data Deliverables
142nd Fighter Group, OANG
Portland International Airport, Portland, Oregon

Method Requirements	Deliverables
GC/MS Field Methods	
Holding time information and methods requested.	Signed chain-of-custody forms
Discussion of laboratory problems	Case narratives
Environmental and QC sample Results[1]	CLP Form 1 or equivalent
Surrogate recoveries. Surrogates to be used in VOCs and SVOCs	CLP Form 2 or equivalent
Matrix spike/spike duplicate. One spike and spike duplicate per 20 samples of a similar matrix for soil VOCs and all SVOCs	CLP Form 3 or equivalent
Method blank data	CLP Form 4 or equivalent
GC/MS tuning for volatiles/semivolatiles	CLP Form 5 or equivalent
GS/MS initial calibration data for volatiles/semivolatiles	CLP Form 6 or equivalent
GS/MS continuing calibration data	CLP Form 7 or equivalent
GC/MS internal standard area data	CLP Form 8 or equivalent

OANG - Oregon Air National Guard.

[1]Should included Form I results for matrix spike/ matrix spike duplicate, method blanks, instrument blanks, and trip blanks.

QC = Quality Control.

PCBs = Polychlorinated Biphenyls.

GC/MS = Gas Chromatograph/Mass Spectrometers.

CLP = Contract Laboratory Package.

for a period of five years after completion of the field effort and will submit all deliverables upon request of the ANG, HAZWRAP, or the OANG.

10.1.2 Field Laboratory Electronic Data

Analytical results are required to be delivered electronically concurrently with the 24- to 48-hour field results in a database format. Ten percent of all analytical data directly transferred from the instrument to the database format must be verified by a laboratory technician to ensure transfer integrity. Any hand entries, required such as sample identification or percent moisture, must be verified by a laboratory technician by comparing against hard copy data. The laboratory will be responsible for including entries for the following fields:

- Client Sample ID;
- Laboratory Sample ID;
- Date and Time of Analysis;
- Type of sample;
- Type of analysis;
- Concentration of compounds detected;
- Detection limit or reporting limit of compounds not detected;
- Sample weight/volume;
- percent moisture (dry weight calculations for soils);
- Dilution Factor;
- Laboratory flags; and
- Comments or Remarks.

The subcontractor Data Evaluation Manager will be responsible for verifying the laboratory electronic data deliverable against the hard copy sample results and the COC for completeness and correctness. After verifying the electronic data deliverable (EDD), the Data Evaluation Manager will be responsible for loading the data into the database to generate 2-dimensional contour maps using MicroSoft™ Windows Paintbrush software in the Real-Time Interpretation System (R-TIS) program. The Data Evaluation Manager will submit the updated database to the Field Team Leader or a qualified designee for interpretation of results. The Data Evaluation Manager may perform data queries under the direction of the Project Manager or Field Team Leader (Figure 10.1).

10.1.3 Field Laboratory Data Validation

All data packages generated by the field laboratory will be examined by an independent validator. Data validation guidelines are located in Attachment A. The data packages will be forwarded to the validators after initial verification by the Analytical Services Manager.

Upon completion of the verification, the Analytical Services Manager will forward the data package to the validators. Data validation packages will be required to be completed and returned to the Analytical Services Manager within 30 days from date of receipt. Validated packages will be reviewed and validation flags input into the database. Figure 10.1 shows the flow of data through the data collection and validation process.

10.2 FIXED-BASE LABORATORY DATA REPORTING AND VALIDATION

10.2.1 Hard Copy Data

Sample results must be submitted to the Field Team Leader within seven days of sample receipt by the fixed-base laboratory. The results must contain the following information:

- Laboratory name and address;
- Analyst;
- Sample ID as provided by the field team;
- Sample ID assigned by the laboratory;
- Date and time of sample receipt;
- Sample X, Y and Z coordinates;
- Date and time of analysis;
- Type of sample (water/soil);
- Type of analysis/method number;
- Concentration of compound detected;
- Detection limit of compounds not detected;

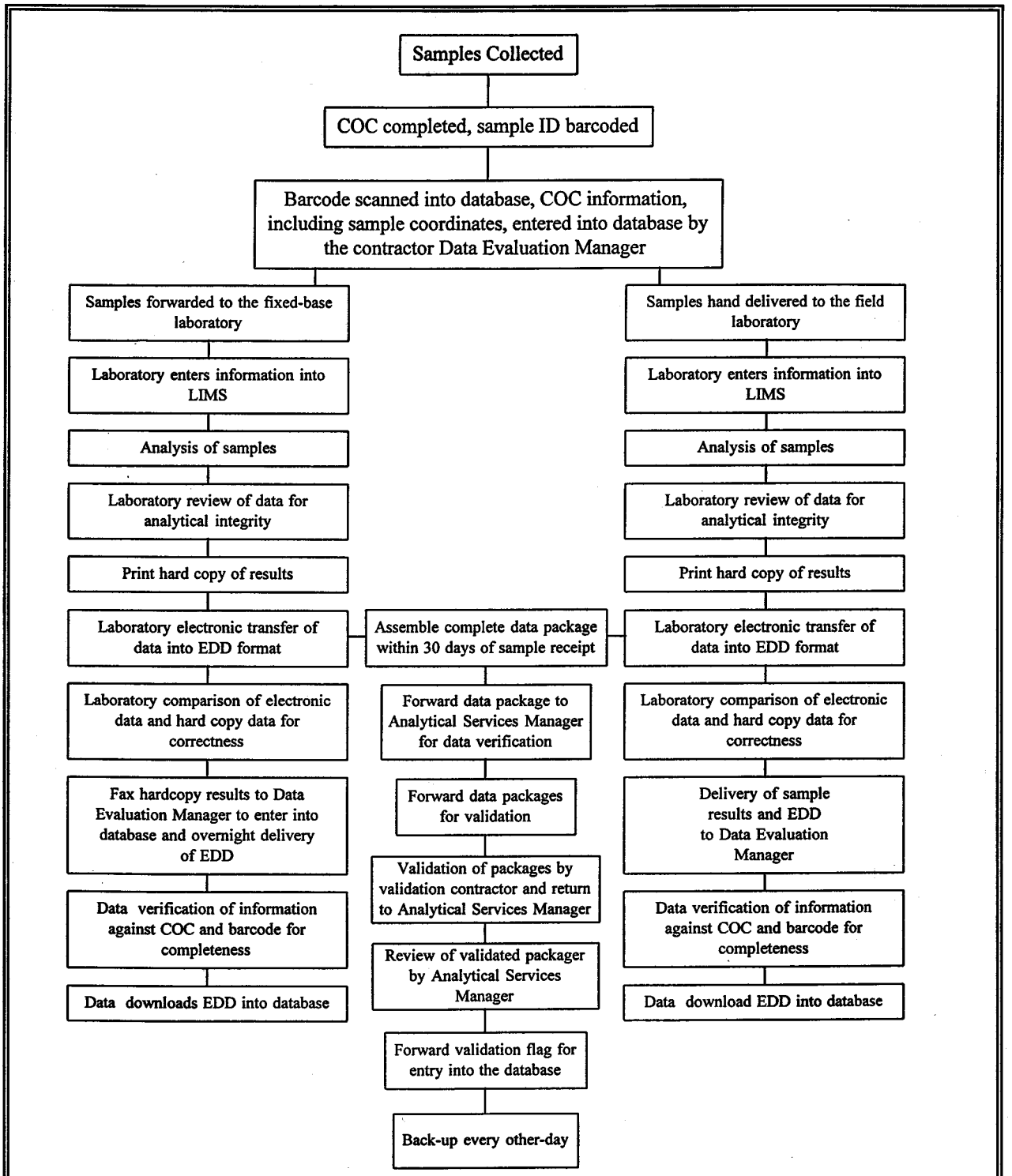

Figure 10.1 — **Data Collection and Validation Process**
142nd Fighter Group, Oregon Air National Guard
Portland International Airport, Portland, Oregon

OPTECH Operational Technologies CORPORATION

- Sample weight/volume;
- percent moisture (dry weight calculations for soils);
- Dilution factor; and
- Comments or remarks.

Complete sample data packages from the fixed-base laboratory are required to be submitted to the Analytical Services Manager within 30 days of sample receipt. Data packages will meet HAZWRAP Level C deliverables requirements. Data packages must contain the appropriate CLP-type forms for each analysis (Table 10.2).

10.2.2 Fixed-Base Laboratory Electronic Deliverables

Analytical results will be required to be delivered electronically concurrently with complete Level C data package in a Microsoft™ Access or similar database format. Ten percent of all analytical data directly transferred from the instrument data station to the database format must be verified by a laboratory technician for transfer integrity. Any hand entries required, such as sample identification, percent moisture or wet chemistry data, must be verified by a laboratory technician by comparison against hard copy data. The laboratory will be responsible for including entries for the following fields:

- Client Sample ID;
- Laboratory Sample ID;
- Date and Time of Analysis;
- Type of sample;
- Type of analysis;
- Concentration of compounds detected;
- Detection limit or reporting limit of compounds not detected;
- Sample weight/volume;
- percent moisture (dry weight calculations for soils);
- Dilution Factor;
- Laboratory flags; and
- Comments or Remarks.

Table 10.2
Fixed-Base Laboratory Data Package Deliverables
142nd Fighter Group, OANG
Portland International Airport, Portland, Oregon

Method Requirements	Deliverables
Requirements for all methods:	
Holding time information and methods requested	Signed chain-of-custody forms
Discussion of laboratory problems	Case narratives
LCS with results on control charts. Run with each batch of samples processed.	Control charts.
Organics:	
Sample results	CLP Form 1 or equivalent.
Surrogate recoveries. Surrogates to be used in volatiles, and semivolatiles. TPH will not require a surrogate spike.	CLP Form 2 or equivalent.
Matrix spikes/spike duplicate. One spike and spike duplicate per 20 samples of similar matrix for VOCs, SVOCs, and TPH.	CLP Form 3 or equivalent.
Method blank data.	CLP Form 4 or equivalent.
GC/MS tuning for volatiles/semivolatiles	CLP Form 5 or equivalent.
GC/MS/GC initial calibration data for volatiles, semivolatiles, and TPH	CLP Form 6 or equivalent.
TPH identification summary form	CLP Form 10 or equivalent.
GC/MS&GC continuing calibration data	CLP Form 7 or equivalent.
GC/MS internal standard area data and analytical sequence	CLP Form 8 or equivalent.
Metals:	
Sample results	CLP Form 1 or equivalent.
Initial and continuing calibration	CLP Form 2 or equivalent.
Blank results	CLP Form 3 or equivalent.
ICP interference check sample	CLP Form 4 or equivalent.
Spike sample recovery (one per 20 samples of similar matrix)	CLP Form 5A or equivalent.
Postdigestion spike sample recovery for ICP metals. Only done if predigest spike recovery exceeds CLP limits.	CLP Form 5B or equivalent.
Duplicates (one per 20 samples will be split and digested as separate samples)	CLP Form 6 or equivalent.
LCS	CLP Form 7 or equivalent.
Standard addition. The decision process outlined in CLP Page E-3 will be used to determine when standard additions are required	CLP Form 8 or equivalent.
Instrument detection limit	CLP Form 10 or equivalent.

Table 10.2 (Concluded)
Fixed-Base Laboratory Data Package Deliverables
142nd Fighter Group, OANG
Portland International Airport
Portland, Oregon

Method Requirements	Deliverables
Metals, Continued.	
ICP serial dilution	CLP Form 9 or equivalent.
ICP interelement correction factors	CLP Form 11 or equivalent.
ICP linear range	CLP Form 12 or equivalent.
Sample preparation	CLP Form 13 or equivalent.
Analytical run log including post digestion analytical spike recovery	CLP Form 14 or equivalent.

*Must be reported in the data package with which the analysis is batched. May be referenced in case narrative for associated analyses that are not included in the reporting group.

**Limited calibration data must be presented in the first data package associated with the ICAL. Remaining data packages may reference the ICAL in the case narrative not supply additional summary forms.

CLP = Contract Laboratory Package.

LCS = Laboratory Control Standard.

GC/MS = Gas Chromatography/Mass Spectrography.

ICP = Inductively Coupled Plasma.

ICAL = Initial Calibration.

The subcontractor data evaluation manager will be responsible for verifying the laboratory electronic data deliverable against the hard copy sample results and the COC for completeness and correctness. After verifying the EDD the data evaluation manager will be responsible for loading the data into the database to generate 2-dimensional contour maps using Microsoft™ Windows Paintbrush software in the Real-Time Interpretation System (R-TIS) program. The data evaluation manager will submit the updated database to the Field Team Leader or a qualified designee for interpretation of results. The data evaluation manager may perform data queries under the direction of the Field Team Leader.

10.2.3 Fixed-Base Laboratory Data Validation

All level C data packages will be validated by an independent validator. Validation of the methods will follow the general logic of the functional guidelines but specific review will be modified to meet method requirements. Validation guidelines are presented in Attachment A.

The data packages will be forwarded to the validators after initial verification by the Analytical Services Manager. The verification process is explained in section 9.2 of the QAPP. Upon completion of verification the Analytical Services Manager will forward the data package to the validators. Data validation packages will be required to be completed and returned to the Analytical Services Manager 30 days from date of receipt. Validated packages will be reviewed and validation flags input into the database. Figure 10.1 shows the flow of data through the data collection and validation process.

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SECTION 11.0 PERFORMANCE AND SYSTEM AUDITS

Audits may consist of two types, system audits and performance audits. The purpose of a system audit is to determine whether appropriate project systems are in place. Performance audits are used to indicate whether those systems are functioning properly. Audits will be conducted by Subcontractor's project Quality Assurance Manager as tasked by the Project Manager to verify the existence of an effective quality control system. Additionally, the audit will evaluate the level of compliance of that system in terms of adherence to quality control measures, standards, records, and project documentation and control.

11.1 PROJECT SYSTEM AUDITS

The Quality Assurance Manager will periodically, on an unannounced basis, call for a system audit. The Project Manager will respond by submitting the QAPP. The auditor will then determine whether the QAPP is in place and whether the reviews called for by the QAPP have been performed. Results of project audits will be reported to the Project Manager.

11.2 TECHNICAL PERFORMANCE AUDITS

Technical performance audits will be conducted by the project QA manager on an ongoing basis during the project, as field data are generated, reduced, and analyzed. All numerical analyses, including manual calculations, mapping, and computer support activities, will be documented and will be subject to performance audits in the form of quality control procedural reviews, mathematical reanalysis, and peer review. Technical peer review is the responsibility of the Project Manager. All records of numerical analyses will be legible, reproduction quality, and complete enough to permit logical reconstruction by a qualified objective reviewer.

11.3 FIELD AUDITS

A field performance audit will be conducted by the Data Management and Analytical Data Evaluation Manager at the beginning of the field effort. The Data Management and Analytical Data Evaluation Manager will closely monitor the mobile laboratory's performance continually through out the course of the field work. The purpose of the field audit is to ensure that proper methods and protocols detailed in this QAPP are consistently practiced in the field. Audits will be performed using tailored checklists prepared by the Quality

Assurance Manager. The requirements and audit questions to be developed will be as specific as possible and will focus on significant investigative techniques. Checklists are encouraged to be completed to the maximum extent possible to give a complete picture of field techniques using a structured approach.

Field operation records will be reviewed to verify that field-related activities have been performed in accordance with appropriate project procedures. Items reviewed will include, but are not limited to, field equipment calibration records, daily field logs, and chain-of-custody documentation.

Upon audit completion, an audit report containing observations and findings and recommended corrective actions will be submitted to the Project Manager.

11.4 LABORATORY AUDITS

The laboratory QA Manager has responsibility for monitoring the internal quality assurance program. The subcontractor will verify that standardized quality assurance programs are in effect to provide objective oversight of laboratory procedures. Additionally, copies of internal quality assurance reports will be requested to ensure standards of quality performance are in effect. The field laboratory will be audited at the beginning of the field effort and monitored closely throughout the project.

SECTION 12.0 PREVENTATIVE MAINTENANCE

Preventive maintenance is an organized program of actions taken to maintain proper instrument and equipment performance and to prevent instruments and equipment from failing during use. An adequate preventive maintenance program increases reliability of a measurement system, and minimizes downtime of field and laboratory instruments.

12.1 FIELD EQUIPMENT

Field equipment will be properly calibrated, charged, and in good working condition before the beginning of each working day. Manufacturers' specifications define the required equipment checks for each type of field equipment used. Non-operational field equipment will be removed from service and a replacement will be obtained within 24 hours. Significant repairs to field equipment will not be performed in the field.

All field instruments will be properly protected against inclement weather during the field investigation. Each instrument is specially designed to maintain its operating integrity during variable temperature ranges that are representative of ranges that will be encountered during working conditions. At the end of each working day, all field equipment will be taken out of the field and placed in a cool, dry room for overnight storage.

All sub-tier contractor equipment (e.g., drilling rig) will arrive at the site in proper working condition. All lubricating and hydraulic motor oils will be checked by the sub-tier contractor before the start of each work day to ensure all fluid reservoirs are full and there are no leaks. Before the start of each work day, the Field Team Leader will also inspect all equipment for fluid leaks. If a leak is detected, the equipment will be removed from service for repair or replacement.

12.2 LABORATORY EQUIPMENT

The ability to generate valid analytical data requires that all analytical instrumentation be properly maintained. Only approved laboratories that have undergone extensive audits by HAZWRAP will be considered for fixed-base laboratory analysis. The mobile laboratory will be required to submit a Laboratory Quality Assurance Plan in accordance with DOE/HWP/65 requirements addressing laboratory equipment maintenance.

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SECTION 13.0 CORRECTIVE ACTION PROTOCOLS

The Quality Assurance Manager will prepare a formal report of all audit proceedings. The programmatic impact of a negative finding, such as the lack of or a failure to use an appropriate procedure, will be determined by the Quality Assurance Manager and reported to the project management staff. A corrective action plan and implementation schedule will be required, and the Project Manager will be responsible for ensuring that immediate action to correct the nonconformance has been initiated. The Project Manager will be responsible for ensuring the successful implementation of the corrective action plan and ensuring that no additional work that is dependent on the nonconforming action is performed until the nonconformance is corrected. Corrective action may include reanalyzing samples if holding times permit, resampling, and evaluating and amending sampling and analytical processes.

The Project Manager will be responsible for ensuring that the corrective action adequately addresses the nonconformance. The Quality Assurance Manager will ensure that corrective actions for nonconformance are implemented by:

- Evaluating all reported nonconformances;
- Controlling additional work on nonconforming items;
- Maintaining the log of nonconformances; and
- Ensuring nonconformance and corrective action reports are included in the site documentation files.

Following implementation of satisfactory corrective action, the Quality Assurance Manager will conduct follow-up activities sufficient to verify implementation of the corrective action. Such confirmation will be documented, along with any other recommendations, in a formal close-out of the audit. The closeout report will be distributed to all appropriate project management personnel.

13.1 FIELD CORRECTIVE ACTION

The initial responsibility for monitoring the quality of field measurements and observations lies with field personnel. The Field Team Leader and the Project Manager are responsible for verifying that all quality control procedures are being followed. This requires that the Field Team Leader assess the correctness of field methods and the ability to meet quality assurance objectives. If a problem occurs that might jeopardize the integrity of the project or cause some

specific quality assurance objective not to be met, it is the responsibility of all field project staff to report all suspected nonconformances by initiating a nonconformance report and submitting it to the Project Manager.

The Project Manager will submit a copy of the nonconformance report to the Quality Assurance Manager for formal investigation. An appropriate corrective action will then be decided upon and implemented. The Project Manager will document the problem, the corrective action, and the results, using the form shown in Figure 13.1. Copies of the documentation form will be provided the Project Manager and the Quality Assurance Manager.

13.2 LABORATORY CORRECTIVE ACTION

The initial responsibility to monitor the quality of an analytical system lies with the analyst. In this regard, the analyst will verify that all quality control procedures are followed and that the results of analyses of quality control samples are within acceptance criteria. This requires that the analyst assess the correctness of all of the following items, where appropriate:

- Sample preparation procedures;
- Initial calibration;
- Calibration verification;
- Method blank result; and
- Laboratory control standards.

If this assessment reveals that any of the quality control acceptance criteria have not been met, as defined by the lab's most recent QAPP or USEPA SW-846 (USEPA, 1986) standards, the analyst must immediately assess the analytical system to correct the problem. The analyst notifies his/her supervisor, section leader, or quality assurance coordinator of the problem and, if possible, identifies the potential cause(s) and makes appropriate corrective action recommendations.

CORRECTIVE ACTION DOCUMENTATION

Report No. _____ Page ____ of ____

DATE/ORIGINATOR: _____

PERSON RESPONSIBLE FOR RESPONSE: _____

DESCRIPTION OF PROBLEM AND WHEN IDENTIFIED: _____

_____

_____

_____

STATE CAUSE OF PROBLEM IF KNOWN OR SUSPECTED: _____

_____

_____

_____

SEQUENCE OF CORRECTIVE ACTION (If no responsible person is identified, bring this form directly to the Manager of Quality Assurance):

State Date, Person, and Action Planned: _____

_____

_____

_____

Corrective Action Approved By: _____

Date: _____

Follow-up Dates: _____ _____ _____ _____ _____

Description of Follow-up: _____

_____

Final Corrective Action Approved By: _____

Date: _____

Other Information: _____

_____

SOURCE: OPERATIONAL TECHNOLOGIES, 1994.

FIGURE 13.1

FORM\CORRACTN

CORRECTIVE ACTION FORM (REDUCED)
142nd FG. Portland International Airport
Portland, Oregon

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

October 1995

The identification of the corrective action obviously depends on the nature of the problem. For example, if a continuing calibration verification is determined to be out of process control, the corrective action may require recalibration of the analytical system and reanalysis of all samples since the last acceptable continuing calibration standard.

Sample-related quality control samples (e.g., matrix spikes and duplicates) provide an indication of matrix effects on analyses and do not require reanalysis if method-related quality control samples (e.g., method blanks, method spikes, and method spike duplicates) indicate acceptable performance.

When the appropriate corrective action measures have been defined and the analytical system is determined to be in control, the analyst documents the problem, the corrective action, and the data, thereby clearly demonstrating that the analytical system is in control. Copies of the documentation are provided to appropriate management staff members and the Quality Assurance Manager, for eventual addition to the project files.

SECTION 14.0 QUALITY ASSURANCE REPORTS TO MANAGEMENT

The Project Manager will rely on written reports and memoranda documenting data assessment activities, quality audits, nonconformances, corrective actions, and quality notices. A copy of all significant quality assurance reports will be forwarded to the appropriate management levels for review and oversight.

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ATTACHMENT A

DATA VALIDATION CRITERIA

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Data Validation Criteria for Metals ..... DVC - 1

Data Validation Criteria for Organic Analysis by Gas Chromatograph/Mass Spectrometry ..... DVC - 15

Data Validation Criteria for Organic Analysis via Gas Chromatography ..... DVC - 43

Data Validation Criteria for Modified Method 8015 ..... DVC - 55

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DATA VALIDATION CRITERIA FOR METALS

Validation for metals and cyanide will essentially follow the CLP functional guidelines. Refer to Table 10.2 of QAPjP for laboratory data deliverables.

1.0 Technical Holding Time

1.1 Review Items

COC forms, case narrative, sample receipt checklist, sample preparation log, and analytical run log.

1.2 Criteria

Holding time requirements listed below apply to preserved samples and are from the date of sample collection to date of analysis.

METALS (except mercury):	180 d
MERCURY:	28 d

1.3 Evaluation

Compare the sampling date from the COC form with the dates of analysis found on the analytical run log to establish sample holding times. Examine the sample receipt checklist and COC form to verify proper sample preservation.

1.4 Action

- o If criteria for holding times are exceeded or samples were not properly preserved, qualify all results greater than IDL (positive results) as estimated (J), and results less than IDL (nondetects) as estimated (UJ).

- If holding times are grossly exceeded (i.e., by a factor of two or more), the expected bias would be low and the validator may determine that results less than IDL (nondetects) should be qualified as unusable (R).

2.0 Instrument Calibration and Calibration Verification

2.1 Review Items

Form 2 or equivalent, sample preparation log, and analytical run log.

2.2 Criteria

o Initial Calibration: Instruments must be calibrated daily and each time they are set up.

- For ICP analysis, a blank and at least one standard must be used in establishing the analytical curve.

- For AA analysis, a blank and at least three standards, one of which must be at the PDL specified by the CLP method (or laboratory reporting limit for non-CLP methods) must be used in establishing the calibration curve.

- For mercury analysis, a blank and at least four standards must be used in establishing the analytical curve.

o Initial and Continuing Calibration Verification (CCV):

- Analytical results must fall within the control limits of 90-110 %R of the true value for all analytes except mercury.

- Analytical results for mercury must fall within the control limits of 80-120 %R.

2.3 Evaluation

By examining review items listed above, verify specified criteria for instrument calibration and calibration verifications were met for the analytical method performed.

2.4 Action

o If the minimum number of standards is not used for initial calibration, the reviewer should use professional judgment to qualify data. However, if the instrument is not calibrated daily and each time it is set up, qualify data (detects and nondetects) as unusable (R).

- o If the ICV or CCV %R falls outside acceptance windows, the following action is to be taken:

  - If %R is between 75-89 percent or 111-125 percent (70-84 percent or 116-130 percent for cyanide, 65-79 percent or 121-135 percent for mercury), qualify results greater than IDL as estimated (J).

  - If %R is within the range of 111-125 percent (116-130 percent for cyanide, 121-135 percent for mercury), results less than IDL are acceptable.

  - If %R is 75-89 percent (70-84 percent for cyanide, 65-79 percent for mercury), qualify results less than IDL as estimated (UJ).

  - If %R is > 125 percent (> 130 percent for cyanide, > 135 percent for mercury), qualify results greater than or equal to IDL as unusable (R); results less than IDL are acceptable.

  - If %R is < 75 percent (< 70 percent for cyanide, < 65 percent for mercury), qualify all results (detects and nondetects) as unusable (R).

3.0 Laboratory Blanks

3.1 Review Items

Form 3, sample preparation log, and analytical run log.

3.2 Criteria

- o No contaminants should be present in the blanks.

- o At least 1 preparation blank must be processed and analyzed with each batch of samples (not to exceed 20 samples).

- o A calibration blank must be analyzed at each wavelength used for analysis immediately after every ICV and CCV, at a frequency of 10 percent or every 2 h during the run, whichever is more frequent.

- o The criteria for evaluation of blanks applies to any laboratory blank [preparation blank, initial calibration blank (ICB), continuing calibration blank (CCB)] associated with samples. Qualification of data should be based upon a comparison with the associated blank having the highest concentration of a contaminant.

3.3 Evaluation

Review blank results reported on Form 3. Verify a preparation blank has been reported per matrix for each digestion batch, and an instrument blank (ICB and CCB) has been analyzed immediately after every ICV and CCV, and after the last sample.

3.4 Action

- o If a blank result has an absolute value less than IDL, no qualification of data is necessary.

- o If the reported blank result is greater than or equal to IDL, qualify all sample results greater than or equal to IDL but < 5X the amount in any blank, as undetected (U).

- o If the blank result is negative, and the absolute value is greater than IDL, all associated samples must be examined. Sample results reported as positive but < 5X the absolute value of the blank will be qualified as estimated (J), and sample results reported as undetected will be qualified as estimated (UJ).

- o Sample results > 5X the blank concentration require no qualification.

NOTE: Laboratory blank analyses may not involve the same weights, volumes, or dilution factors as associated samples, and reported results for soil samples will not be in the same units as calibration blank data. In addition, the reviewer may need to consider the percentage of moisture for soils reported on a dry weight basis. These factors must be taken into consideration when qualifying data based on laboratory blank results.

SAMPLE RESULTS MUST NOT BE CORRECTED BY SUBTRACTING ANY BLANK VALUE.

Table 1
Example of Analyte Concentration Equivalents (Mg/L) Arising From Interferents at the 100 mg/L Level

Analyte	Wavelength (nm)	Interferent									
		Al	Ca	Cr	Cu	Fe	Mg	Mn	Ni	Ti	V
Aluminum	308.215	--	--	--	--	--	--	0.21	--	--	1.4
Antimony	206.833	0.47	--	2.9	--	0.08	--	--	--	0.25	0.45
Arsenic	193.696	1.3	--	0.44	--	--	--	--	--	--	1.1
Barium	455.403	--	--	--	--	--	--	--	--	--	--
Beryllium	313.042	--	--	--	--	--	--	--	--	0.04	0.05
Boron	249.773	0.04	--	--	--	0.32	--	--	--	--	--
Cadmium	226.502	--	--	--	--	0.03	--	--	0.02	--	--
Calcium	317.933	--	--	0.08	--	0.01	0.01	0.04	--	0.03	0.03
Chromium	267.716	--	--	--	--	0.003	--	0.04	--	--	0.04
Cobalt	228.616	--	--	0.03	--	0.005	--	--	0.03	0.15	--
Copper	324.754	--	--	--	--	0.003	--	--	--	0.05	0.02
Iron	259.940	--	--	--	--	--	--	0.12	--	--	--
Lead	220.353	0.17	--	--	--	--	--	--	--	--	--
Magnesium	279.079	--	0.02	0.10	--	0.13	--	0.25	--	0.07	0.12
Manganese	257.610	0.005	--	0.01	--	0.002	0.002	--	--	--	--
Molybdenum	202.030	0.05	--	--	--	0.03	--	--	--	--	--
Nickel	231.604	--	--	--	--	--	--	--	--	--	--
Selenium	196.026	0.23	--	--	--	0.09	--	--	--	--	--
Silicon	288.158	--	--	0.07	--	--	--	--	--	--	0.01
Sodium	588.995	--	--	--	--	--	--	--	--	0.08	--
Thallium	190.864	0.3	--	--	--	--	--	--	--	--	--
Vanadium	292.402	--	--	0.05	--	0.005	--	--	--	0.02	--
Zinc	213.856	--	--	--	0.14	--	--	--	0.29	--	--

4.0 Equipment Rinseates and ASTM Type II Source Water Check Samples

4.1 Review Items

Results for equipment rinseates and ASTM Type II source water check samples associated with the collection of environmental samples and decontamination of sampling equipment.

4.2 Criteria

Ideally, no target analytes should be present in equipment rinseates and ASTM Type II source water check samples.

4.3 Evaluation

Review associated equipment rinseates and ASTM Type II source water results to determine if contamination has resulted due to sample collection and equipment decontamination procedures.

4.4 Action

Use professional judgment when qualifying sample results based on equipment rinseates and ASTM Type II source water results. All equipment rinseate and ASTM Type II source water check samples collected during the sampling event or field effort may need to be reviewed to determine if trends in contamination are occurring. For example, if one analyte is detected in 80 percent of environmental samples, but only appears in 5 percent of the associated equipment rinseate samples, this is probably indicative of environmental contamination and sample results should not be qualified.

5.0 Inductively Coupled Plasma Interference Check Sample

5.1 Review Items

Form 4. Refer to Table 1 for recommended interferant and analyte elemental concentrations used for ICS solutions.

5.2 Criteria

- An ICS must be analyzed at the beginning and end of each sample run, or twice every 8 h, whichever is more frequent.

- Results for ICS solution AB analysis must fall within the control limits of ± 20 percent of the true value.

5.3 Evaluation

Verify that ICS-A and ICS-AB solutions were analyzed at the required frequency and that concentrations reported on Form 4 are within required control limits.

5.4 Action

- In general, sample data are acceptable if the concentrations of aluminum, calcium, iron, and magnesium in the sample are found to be less than or equal to their respective concentrations in the ICS. If these elements are present at concentrations greater than levels in the ICS, or other elements are present in the sample at > 10 mg/L, the possibility of other interference effects should be investigated by using Table 2 on page D-26 of ILMO3.0 (see next page). The concentration produced by an interfering element should be estimated, and if the estimate is > 2X PDL and also > 10 percent of the reported concentration of the affected element, qualify affected results as estimated (J).

- For samples with concentrations of aluminum, calcium, iron, and magnesium comparable to or greater than their respective levels in the ICS:

  - If ICS recovery for an element is > 120 percent and sample results are less than IDL, no qualification is necessary. Qualify sample results greater than IDL as estimated (J).

  - If ICS recovery for an element is 50-79 percent, qualify sample results greater than IDL as estimated (J), and results less than IDL as estimated (UJ).

- If ICS recovery results for an element are < 50 percent, qualify the affected data (detects and nondetects) as unusable (R).

o If results greater than IDL are reported for elements not present in the ICS solution, the possibility of false positives exists. Associated sample data for the affected elements should be evaluated. For samples with comparable or higher levels of interferents, or with analyte concentrations that approximate the levels found in the ICS (false positive), qualify sample results greater than IDL as estimated (J).

o If negative results having an absolute value greater than IDL are observed for elements not present in ICS solutions, the possibility of false negatives in the samples may exist. For samples with comparable or higher levels of interferents, qualify results for the affected analytes less than IDL as estimated (UJ).

o If ICS check samples were not analyzed at the required frequency, all QC information must be carefully reviewed when evaluating data.

6.0 Laboratory Control Samples

6.1 Review Items

Form 7, sample preparation log, and analytical run log.

6.2 Criteria

o All aqueous LCS results must fall within the control limits of 80-120 %R, except antimony and silver which have no control limits. An aqueous LCS is not required for mercury analysis. For cyanide, a distilled ICV is used as the LCS.

o All solid LCS results must fall within the established control limits specified on Form 7.

6.3 Evaluation

Review Form 7, sample preparation log, and analytical run log to verify LCS %R is within specified control limits.

6.4 Action

- Aqueous LCS
  - If LCS recovery of any analyte (except antimony and silver) falls within the range of 50-79 percent or > 120 percent, qualify results greater than IDL as estimated (J).
  - If sample results are less than IDL and LCS recovery is > 120 percent, data are acceptable and no qualification is required.
  - If sample results are less than IDL and LCS recovery falls within the range of 50-79 percent, qualify data for the affected analyte as estimated (UJ).
  - If LCS recovery results are < 50 percent, qualify associated sample results (detects and nondetects) for the affected analyte as unusable (R).
- Solid LCS
  - If the solid LCS recovery for any analyte falls outside established control limits, qualify all sample results greater than IDL as estimated (J).
  - If LCS results are higher than control limits and sample results are less than IDL, data are acceptable and no qualification is required.
  - If LCS results for an analyte are lower than control limits, qualify all sample results less than IDL as estimated (UJ).

7.0 Laboratory Duplicate Sample Analysis

7.1 Review Items

Form 6, sample preparation log, and analytical run log.

7.2 Criteria

- Samples identified as field QC samples are not to be used for duplicate sample analysis.

- One duplicate sample must be prepared and analyzed from each group of samples with a similar matrix type, or for each SDG.

- A control limit of ± 20 percent for aqueous samples (± 35 percent for soil samples) for RPD is applied to sample results > 5X PDL (or the reporting limit).

- A control limit of plus or minus PDL or reporting limits (± 2X PDL or reporting limit for soil) is applied to sample results < 5X PDL (or the reporting limit), including the case when only one duplicate sample results is < 5X PDL (or the reporting limit).

  NOTE: Some EPA regions may require that control limits of ± 20 percent RPD and plus or minus PDL (or the reporting limit) be applied, regardless of sample matrix type.

7.3 Evaluation

Review Form 6 and verify that RPD values are within control limits. Recalculate one or more RPD values using the following equation:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where:

S = First sample value (original)
D = Second sample value (duplicate)

7.4 Action

- o If duplicate analysis results for a particular analyte are > 5X PDL/reporting limit and RPD is not within 20 percent for aqueous (35 percent for soil) samples, qualify the results for that analyte in all associated samples of the same matrix as estimated (J).

- o If one or both sample results are < 5X PDL/reporting limits, and the duplicate sample result for a particular analyte is not within plus or minus PDL/reporting limit of the original aqueous (± 2X PDL/reporting limit for soil) sample result, associated samples of the same matrix are qualified as estimated (J/UJ).

- o If a field QC sample was used for duplicate analysis, all other QC data must be carefully checked when evaluating the data.

8.0 Field Duplicate Analysis

8.1 Review Items

Validated results for samples identified as field duplicates.

8.2 Criteria

Field duplicate analyses measure both field and laboratory precision and, therefore, may have more variability than laboratory duplicates that measure only laboratory performance. The criteria used to evaluate field duplicates must be specified in the project WP. In the absence of specified criteria, the following guidelines are recommended:

- o For sample results > 5X PDL or the reporting limit, a control limit of ± 40 RPD for water (± 70 RPD for soil) may be used.

- o For sample results < 5X PDL or the reporting limit, a control limit of ± 2X PDL or the reporting limit for waters (± 4X PDL or reporting limit for soils) may be used.

8.3 Evaluation

Compare results for samples identified as field duplicates and calculate the RPD between results.

8.4 Action

Generally, no action is taken on the basis of field duplicate results. Results that fall outside criteria specified in the project WP, or limits recommended above, should be noted during data validation and discussed in the QC summary section of the project final report.

9.0 Matrix Spike Sample Analysis

9.1 Review Items

Form 5A, sample preparation log, and analytical run log.

9.2 Criteria

- Samples identified as field QC samples cannot be used for MS analysis. HAZWRAP requires that MS analysis be performed on a sample from the HAZWRAP project being validated.

- MSs must be analyzed at a frequency of 1 per 20 or less samples of similar matrix.

- Spike recovery (%R) must be with the limits of 75-125 percent. Spike recovery limits do not apply when sample concentration exceeds the spike concentration by a factor of four or more, and data are reported unflagged even if the %R does not meet acceptance criteria.

9.3 Evaluation

Review Form 5 and verify that an MS was prepared and analyzed for each SDG and matrix type, and %R values are within control limits. Recalculate one or more reported %Rs using the following equation:

$$\%R = \frac{(SSR - SR)}{SA} \times 100$$

Where:

SSR = Spiked sample result
SR = Sample result
SA = Spike added

9.4 Action

- o If the spike recovery is > 125 percent and reported sample results are less than IDL, data are acceptable for use and no qualification is necessary.

- o If the spike recovery is > 125 percent or < 75 percent and sample results are greater than IDL, qualify data for all samples of the same matrix in the SDG as estimated (J).

- o If the spike recovery falls within the range of 30-74 percent and sample results are less than IDL, qualify data for these samples as estimated (UJ).

- o If spike recovery results are < 30 percent and sample results are less than IDL, qualify data for these samples as unusable (R).

- o If an MS is not associated with reported sample results, or the MS was performed on a sample from another project or client, all other QC data must be carefully checked when evaluating data.

10.0 Inductively Coupled Plasma Serial Dilution

10.1 Review Items

Form 9 and analytical run log.

NOTE: ICP serial dilutions are not required by EPA Method 200.7.

10.2 Criteria

If the analyte concentration is sufficiently high (concentration in the original sample is minimally a factor of 50 above the IDL), the %D between the sample result and a 5-fold dilution result must be < 10 percent.

10.3 Evaluation

Recalculate the %D for one or more analytes to verify dilution analysis results agree with results reported on Form 9.

$$\%D = \frac{|I - S|}{I} \times 100$$

Where:

I = Initial sample result

S = Serial dilution result (Instrument reading x 5)

10.4 Action

When criteria are not met, qualify associated data as estimated (J). If evidence of negative interference is found, professional judgment is used in qualifying data.

DATA VALIDATION CRITERIA FOR ORGANIC ANALYSES BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY

Refer to Table 10.2 of the QAPjP for minimum laboratory data deliverables for HAZWRAP.

1.0 Validation of Semivolatiles by Gas Chromatography/Mass Spectrometry Analysis

1.1 Technical Holding Times

1.1.1 Review Items

Form 1s, COC forms, laboratory sample receipt form, and case narrative.

1.2 Criteria

- o Aqueous samples for semivolatile organic compounds (SVOCs) analysis must be kept cool (4°C ± 2°C) and extracted within 7 d from sample collection. Analysis must be within 40 d from the date sample extraction was initiated.

- o For cooled (4°C ± 2°C) non-aqueous SVOC samples, extraction must begin within 14 d from sample collection and analysis must be within 40 d from the date sample extraction was initiated.

1.1.3 Evaluation

- o Extraction holding times are established by reviewing sampling dates on signed COC forms with dates of extraction found on Form 1.

- o Analysis holding times are established by comparing the sample extraction date and analysis date found on Form 1.

- o Samples must be received intact at a temperature of 4°C ± 2°C. This information should be located on the laboratory sample receipt form.

1.1.4 Action

- o If samples were not received and maintained at 4°C ± 2°C, use professional judgment to evaluate the possible effect on data. If sample storage temperatures exceeded 20°C, it is recommended that sample results be qualified as estimated (J/UJ).

- o If criteria for holding times are exceeded, qualify positive results as estimated (J) and nondetects as estimated (UJ).

- o If holding times for sample extraction or analysis are grossly exceeded (i.e., by a factor of two or more), qualify positive results as estimated (J) and nondetects as unusable (R).

1.2 Gas Chromatography/Mass Spectrometry Instrument Performance Check (or Tuning)

1.2.1 Review Items

Form 5.

1.2.2 Criteria

- o Samples, blanks, MS/MSDs, and standards must have been injected within the time window specified by the method.

- o Ion abundance criteria listed on Form 5 for the method performed must be met.

- o Tuning frequency and criteria are different for CLP 2/88 and 3/90 revisions, SW-846 Method 8270, and NPDES Methods 525 and 625. Analyses utilizing these methods should be evaluated against stated criteria. All ion abundances must be normalized to m/z 198.

1.2.3 Evaluation

- o Ensure Form 5 is present and complete, and that instrument performance checks were analyzed at the required frequency.

- o Verify the mass spectral listing has been normalized to m/z 198 (peak ion fragment).

1.2.4 Action

- o If environmental and QC samples were not analyzed within the required tuning frequency, use professional judgment in assessing the possible effect on reported data.

- o If the mass listing does not match mass criteria listed on Form 5 or the mass assignment is in error (such as m/z 199 is indicated to be the base peak rather than m/z 198), all associated data must be flagged as unusable (R).

1.3 Initial Calibration

1.3.1 Review Items

Form 6.

1.3.2 Criteria

- o A three- to six-point calibration of semivolatile target compound standards containing surrogates must be analyzed at the beginning of each analytical sequence, or as necessary when continuing calibration acceptance criteria are not met.

- o One calibration standard should be at or near the contract required quantitation limit (PQL) or reporting limit (MDL for non-CLP methods). Standards should not exceed the working range of the GC/MS system.

- o Minimum RRF criteria must be ≥ 0.05.

- o The percent relative standard deviation (RSD) for RRFs in the initial calibration must be $\leq$ 30 percent.

1.3.3 Evaluation

- o Verify that the correct number and concentrations of standards were used for initial calibration.

- o Ensure standards were analyzed within the required frequency of the associated instrument performance check.

- o Ensure RRFs for initial calibration standards for all target compounds and surrogates are ≥ 0.050.

- o Ensure all initial calibration percent RSDs are ≤ 30 percent for compounds in the calibration curve.

1.3.4 Action

- o If the number and concentrations of calibration standards required by the method were not analyzed, samples associated with that calibration curve must be evaluated carefully to determine the usability of data.

- o If any compound has a RSD > 30 percent and the RRF is ≥ 0.050, positive results for that compound must be flagged as estimated (J) and nondetects should be qualified using professional judgment. For example, the following qualifications are recommended:

  - If the percent RSD is > 30 percent but ≤ 50 percent, and the RRF is ≥ 0.050, qualify positive results (J). Do not qualify nondetects.

  - If the percent RSD is > 50 percent but ≤ 80 percent, and the RRF is ≥ 0.050, qualify positive results (J) and nondetects (UJ).

  - If the percent RSD is > 80 percent, and RRF is ≥ 0.05, qualify positive results (J) and nondetects (R).

- o If any initial calibration RRF is < 0.050, all positive results for that compound must be flagged as estimated (J) and nondetects for that compound qualified as unusable (R).

1.4 Continuing Calibration

1.4.1 Review Items

Form 5, Form 6, and Form 7.

1.4.2 Criteria

- o The continuing calibration standard must be performed immediately after the system performance check (decafluorotriphenylphosphine tune) at the beginning of each analytical sequence and within the required tuning frequency.

- o The minimum continuing calibration RRF for compounds (target compounds and surrogates) is ≥ 0.050.

- o Continuing calibration %D between the initial calibration average RRF and the continuing calibration RRF must be within the ± 25 percent window for all compounds.

1.4.3 Evaluation

- o Verify the continuing calibration standard was performed at the required frequency and order by checking Form 5.

- o Verify the continuing calibration was compared to the correct initial calibration by checking Form 6 with Form 7.

- o Verify RRFs and %D for all compounds are within specifications.

1.4.4 Action

- o If the continuing calibration RRF is < 0.050, qualify positive results as estimated (J) and nondetected semivolatile target compounds as unusable (R).

- o If the %D is outside the ± 25 percent criterion and the continuing calibration RRF is ≥ 0.050, qualify detected and nondetected compounds as estimated (J/UJ).

1.5 Laboratory Blanks

1.5.1 Review Items

Form 1 and Form 4.

1.5.2 Criteria

- o No contaminants should be found in blanks.

- o A method blank must be analyzed on each GC/MS system used to analyze the reported sample group.

1.5.3 Evaluation

- o Review Form 1s for associated laboratory blanks to determine the presence of target and nontarget compounds in the blanks.

- o Ensure that a method blank has been reported per matrix, per concentration level, for each extraction batch (at a frequency of 1 to 20 extracted samples, or less), and for each GC/MS system used to analyze SVOC samples. The Method Blank Summary (Form 4) should be used to identify samples associated with each method blank.

1.5.4 Action

- o If a compound is found in a blank but not found in the associated sample, no action is taken.

- If a compound is found in a blank and the associated sample, the following two rules (5X and 10X) apply:

  - The 10X rule applies to common phthalate laboratory contaminants.

    - When concentration of the compound in the sample is greater than or equal to PQL or the reporting limit, but < 10X the highest concentration found in a laboratory blank, consider the result as a nondetect and flag it with a (U).

    - When concentration of the compound in the sample is less than PQL or the reporting limit, and < 10X the highest concentration found in a laboratory blank, report the result at PQL or the reporting limit with a (U) qualifier.

    - When concentration of the compound in the sample is ≥ 10X the highest concentration found in a laboratory blank, the result is considered as positive, and no flag is required.

  - The 5X rule applies to compounds other than the common phthalate laboratory contaminants listed previously.

    - When concentration of the compound in the sample is greater than or equal to PQL or the reporting limit but < 5X the highest concentration found in a laboratory blank, consider the result as a nondetect and flag it with a (U).

    - When concentration of the compound in the sample is less than PQL or the reporting limit and < 5X the highest concentration found in a laboratory blank, report the result at PQL or the reporting limit with a (U) qualifier.

    - When concentration of the compound in the sample is ≥ 5X the highest concentration found in a laboratory blank, consider the result as positive, and no flag is required.

- If inordinate amounts of other target compounds and/or TICs are found in any blank, this should be noted in the validation report.

- o If no method blank was extracted and analyzed for each set of samples (or at a frequency of 1 per 20 or less), or if the method blank was not run on the same GC/MS system as the samples, associated data must be assessed using professional judgment.

- o The same consideration given to target compounds should also be given to TICs found in both the sample and associated blank(s) (see Section 1.11 for TIC guidance).

1.6 Equipment Rinseates and ASTM Type II Source Water Check Samples

1.6.1 Review Items

Results for equipment rinseates and ASTM Type II source water check samples associated with the collection of environmental samples and decontamination of sampling equipment.

1.6.2 Criteria

Ideally, no target analytes should be present in equipment rinseates and ASTM Type II source water check samples.

1.6.3 Evaluation

Review associated equipment rinseate and ASTM Type II source water results (Form 1s) to determine if contamination has resulted due to sample collection and equipment decontamination procedures.

1.6.4 Action

Use professional judgment when qualifying sample results based on equipment rinseate and ASTM Type II source water results. All equipment rinseate and ASTM Type II source water check samples collected during the sampling event or field effort may need to be reviewed to determine if trends in contamination are occurring. For example, if 1 compound is detected in 80 percent of environmental samples, but only appears in 5 percent of the associated equipment rinseate samples, this is probably indicative of environmental contamination and sample results should not be qualified.

1.7 Surrogate Spikes

1.7.1 Review Items

Form 2.

1.7.2 Criteria

- o The number and concentration of surrogate compounds specified in the method performed must be added to all samples and blanks to measure their recovery in sample and blank matrices.

- o Surrogate spike recoveries for the method performed must be within acceptance limits specified on the laboratory Form 2.

1.7.3 Evaluation

- o Review Form 2 to verify that surrogate recoveries for samples and blanks are within acceptance limits.

- o Verify that method requirements for re-analysis of samples based on surrogate recovery were followed.

1.7.4 Action

- o If the method performed requires less than three surrogates per fraction (acid and base/neutral), professional judgment must be used to assess data.

  - If two or more surrogates in either SVOC fraction (base/neutral or acid) have a recovery greater than the upper QC limit, that affected fraction of compounds with positive results will be qualified as estimated (J) and nondetects will not be qualified.

  - If two or more surrogates in either SVOC fraction have a recovery greater than or equal to ten percent, but less than the lower acceptance limit, that affected fraction of compounds will be qualified as estimated (J/UJ).

- o If any surrogate spike recovery is less than ten percent, detected semivolatile target compounds should be flagged as estimated (J) and nondetect semivolatile target compounds should be qualified as unusable (R).

1.8 Matrix Spike/Matrix Spike Duplicate

1.8.1 Review Items

Form 3.

1.8.2 Criteria

- o MS and MSD samples must be analyzed at a frequency of at least 1 MS and MSD per 20 samples of similar matrix.

- o Spike recoveries should be within method-specific limits provided on Form 3.

- o RPD between MS and MSD recoveries must be within limits provided on Form 3.

1.8.3 Evaluation

- o Verify that MS and MSD samples were analyzed at the required frequency and results are provided for each sample matrix.

- o Ensure results for MS/MSD %R and RPD are within limits.

1.8.4 Action

No action is taken on MS/MSD data alone. Professional judgment must be used to evaluate MS/MSD results in conjunction with other QC criteria to determine if qualifications are necessary.

1.9 Laboratory Control Samples (If required by method)

1.9.1 Review Items

Form 3 and Form 1 for LCS.

1.9.2 Criteria

- o LCSs are analyzed at a frequency of 1 per 20 samples per SDG.
- o The LCS must be prepared and analyzed with samples reported in the SDG.
- o LCS %Rs must be within acceptance limits provided on Form 3.

1.9.3 Evaluation

Verify that an LCS was analyzed at the required frequency and results are within acceptance limits specified on Form 3.

1.9.4 Action

If LCS criteria are not met, professional judgment must be used to assess data for qualification. The following guidance is suggested for qualifying sample data for which the associated LCS does not meet required criteria.

- o If LCS recovery is greater than the upper acceptance limit, positive sample results for affected compound(s) should be qualified as estimated (J). Nondetects do not require qualification.
- o If LCS recovery is less than the lower acceptance limit, associated detected target compounds should be qualified estimated (J) and all nondetects should be qualified as unusable (R).

1.10 Internal Standard Area Performance

1.10.1 Review Items

Form 8.

1.10.2 Criteria

- o IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated continuing calibration standard.

- o RT of the IS must not vary more than ± 30 s from the RT of the associated continuing calibration standard.

1.10.3 Evaluation

- o Verify that all RT and IS areas are within required criteria.

- o If two analyses were performed for a particular fraction, the validator must determine which are the best data to report. Considerations should include:

  - Magnitude and direction of the IS area shift.

  - Magnitude and direction of the IS RT shift.

  - Technical holding times.

  - Comparison of values of the target compounds in each fraction.

  - Comparison of other QC data.

1.10.4 Action

- o If an IS area count for a sample or blank is outside - 50 percent or + 100 percent of the area of the associated standard:

- Positive results for compounds quantitated using that IS should qualified as estimated (J).

- Nondetected compounds quantitated using an IS area count > 100 percent should not be qualified.

- Nondetected compounds quantitated using an IS area count < 50 percent are reported at the associated sample quantitation limit as estimated (UJ).

o If extremely low area counts are reported, or if performance exhibits a major abrupt drop-off, severe loss of sensitivity is indicated. Nondetected target compounds should be qualified as unusable (R).

o If an IS RT varies > 30 s from the associated standard, professional judgment must used. Validators may determine that positive results should be flagged as estimated (J), and nondetected semivolatile compounds for that IS should be qualified as unusable (R).

1.11 Tentatively Identified Compounds (if required)

1.11.1 Review Items

Form 1s for samples and blanks, and Form 4.

1.11.2 Criteria

o For each sample, the laboratory must conduct a mass spectral search of the NIST library and report the possible identity for SVOC fraction peaks that are not surrogate spikes, ISs, or TCLs, but have area or height > 10 percent (> 50 percent for the CLP Low Concentration Water method) of the area or height of the nearest IS.

o TIC results are reported for each sample on the Organic Analysis Data Sheet (Form 1). The number of TICs to be reported is specified in the analytical method or QAPP.

1.11.3 Evaluation

- o Form 1s for laboratory blanks should be examined to verify that TICs reported in associated samples are not found in blanks. This is accomplished by comparing compound RTs reported on Form 1s for samples and blanks.

- o The reviewer should be aware of common laboratory artifacts/contaminants and their sources (e.g., aldol condensation products, solvent preservatives, and reagent contaminants). These may be present in blanks and not reported as sample TICs:

  - Common laboratory contaminants [phthalates (m/z 149) at levels < 100 μg/L or 4000 μg/Kg].

  - Solvent preservatives, such as cyclohexene which is a methylene chloride preservative. Related by-products include cyclohexanone, cyclohexenone, cyclohexanol, cyclohexenol, chlorocyclohexene, and chlorocyclohexanol.

1.11.4 Action

- o TIC results should be flagged (NJ), tentatively identified, with approximated concentrations.

- o If the TIC is not found in any blanks, but is a suspected artifact of common laboratory contamination, the result may be qualified as unusable (R).

- o TIC results not sufficiently above the level in the blank should not be reported. (Dilutions and sample size must be taken into account when comparing the amounts present in blanks and samples.)

- o Similar isomers may be reported as a total number.

2.0 Validation of Volatiles by Gas Chromatography/Mass Spectrometry Analysis

2.1 Technical Holding Times

2.1.1 Review Items

Form 1s, COC forms, laboratory sample receipt form, and case narrative.

2.1.2 Criteria

- o Aqueous samples for VOC analysis must be kept cool (4°C ± 2°C) and acid preserved to a pH of 2 or below. Analysis must be within 14 d from the date of sample collection.

- o For cooled (4°C ± 2°C) non-aqueous VOC samples, analysis must be within 14 d from the date sample collection.

- o Aqueous samples that have not been preserved to a pH of 2 or below must be analyzed within 7 d of sample collection.

2.1.3 Evaluation

- o Analysis holding times are established by comparing the sample analysis date with the collection date. This review is accomplished by using information from the Form 1 and COC form.

- o Samples must be received intact at a temperature of 4°C ± 2°C. This information should be located on the laboratory sample receipt form.

2.1.4 Action

- o If samples were not received and maintained at 4°C ± 2°C, use professional judgment to evaluate the possible effect on data. The following guidelines are recommended for qualification of volatile organic results based on sample temperature:

- If laboratory records indicate that samples were received and/or maintained between 7 and 15°C, qualify results as estimated (J/UJ).

- If laboratory records indicate that samples were received and/or maintained at > 15°C, nondetected results may be rejected (R). Positive detects are qualified (J), estimated.

o If criteria for holding times are exceeded, qualify positive results as estimated (J) and nondetects as estimated (UJ).

o If holding times for sample analysis are grossly exceeded (i.e., by a factor of two or more), qualify positive results as estimated (J) and nondetects as unusable (R).

2.2 Gas Chromatography/Mass Spectrometry Instrument Performance Check (or Tuning)

2.2.1 Review Items

Form 5.

2.2.2 Criteria

o Samples, blanks, MS/MSDs, and standards must have been injected within the time window specified by the method.

o Ion abundance criteria listed on Form 5 for the method performed must be met.

o Tuning frequency and criteria are different for CLP 2/88 and 3/90 revisions, SW-846 Method 8240, and NPDES Methods 524.2 and 624. Analyses utilizing these methods should be evaluated against stated criteria. All ion abundances must be normalized to m/z 95.

2.2.3 Evaluation

o Ensure Form 5 is present and complete, and that instrument performance checks were analyzed at the required frequency.

- o Verify the mass spectral listing has been normalized to m/z 95 (peak ion fragment).

2.2.4 Action

- o If environmental and QC samples were not analyzed within the required tuning criteria frequency, use professional judgment in assessing the possible effect on reported data.

- o If the mass listing does not match mass criteria listed on Form 5 or the mass assignment is in error (such as m/z 96 is indicated to be the base peak rather than m/z 95), all associated data must be flagged as unusable (R).

2.3 Initial Calibration

2.3.1 Review Items

Form 6.

2.3.2 Criteria

- o A three- to five-point calibration of volatile target compounds containing surrogates must be analyzed at the beginning of each analytical sequence, or as necessary when continuing calibration acceptance criteria are not met.

- o One calibration standard should be at or near PQL or the reporting limit (MDL for non-CLP methods). Standards should not exceed the working range of the GC/MS system.

- o Minimum RRF criteria must be ≥ 0.05.

- o The percent RSD for RRFs in the initial calibration must be ≤ 30 percent.

2.3.3 Evaluation

- o Verify that the correct number and concentrations of standards were used for initial calibration.

- Ensure standards were analyzed within required frequency of the associated instrument performance check.

- Ensure RRFs for initial calibration standards for all target compounds and surrogates are ≥ 0.050.

- Ensure all initial calibration percent RSDs are ≤ 30 percent for compounds in the calibration curve.

2.3.4 Action

- If the number and concentration of required calibration standards according to the method were not analyzed, samples associated with that calibration curve must be evaluated carefully to determine the usability of data.

- If any compound has a percent RSD > 30 percent and RRF is ≥ 0.050, positive results for that compound must be flagged as estimated (J) and nondetects should be qualified using professional judgment. For example, the following qualifications are recommended:

  - If the percent RSD is > 30 percent but ≤ 50 percent, and the RRF is ≥ 0.050, qualify positive results (J). Do not qualify nondetects.

  - If the percent RSD is > 50 percent but ≤ 80 percent, and the RRF is ≥ 0.050, qualify positive results (J) and nondetects (UJ).

  - If the percent RSD is > 80 percent, and RRF is ≥ 0.05, qualify positive results (J) and nondetects (R).

- If any initial calibration RRF is < 0.050, all positive results for that compound must be flagged as estimated (J) and nondetects for that compound qualified as unusable (R).

2.4 Continuing Calibration

2.4.1 Review Items

Form 5, Form 6, and Form 7.

2.4.2 Criteria

- The continuing calibration standard must be performed immediately after the system performance check (bromofluorobenzene tune) at the beginning of each analytical sequence and within the required tuning frequency.

- The minimum continuing calibration RRF for compounds (TCLs and surrogates) is ≥ 0.050.

- Continuing calibration %D between the initial calibration average RRF and the continuing calibration RRF must be within the ± 25 percent window for all compounds. For data generated by the CLP Low Concentration Water method, %D between the initial calibration average RRF and the continuing calibration RRF must be within ± 30 percent.

2.4.3 Evaluation

- Verify the continuing calibration standard was performed at the required frequency by checking Form 5.

- Verify the continuing calibration was compared to the correct initial calibration by checking Form 6 with Form 7.

- Verify RRFs and %D for all compounds are within limits.

2.4.4 Action

- If the continuing calibration RRF is < 0.050, qualify positive results as estimated (J) and nondetected volatile target compounds as unusable (R).

- If the %D is outside the ± 25 percent criterion and the continuing calibration RRF is ≥ 0.050, positive results must be flagged as estimated (J) and nondetect volatile target compounds (UJ).

2.5 Laboratory and Trip Blanks

2.5.1 Review Items

Form 1, Form 4, COC form, and results for associated trip blanks. (Correlations between trip blanks and environmental samples in the SDG must also be provided.)

2.5.2 Criteria

- No contaminants should be found in blanks.

- A method blank must be analyzed on each GC/MS system used to analyze the reported sample group.

- If required by the method (i.e., CLP Low Concentration Water and CLP SOW OLM02.1), a storage blank must be prepared upon receipt of the first samples from the SDG, and stored with samples until analysis. The storage blank must be analyzed once per SDG.

2.5.3 Evaluation

- Review results (Form 1s) for associated laboratory and trip blanks to determine the presence of target and non-target compounds in the blanks.

- Ensure that a method blank has been reported per matrix, per concentration level, for each analytical batch (at a frequency of 1 per 20 samples, 1 per 12 hours of analyses, or less), and for each GC/MS system used to analyze VOC samples. The Method Blank Summary (Form 4) should be used to identify samples associated with each method blank.

- Review COC forms to ensure that a trip blank has been included in each cooler containing samples for VOC analysis.

- Verify that a storage blank (if required by the method performed) has been analyzed and included with each SDG and that storage blanks are free of contamination.

2.5.4 Action

- If a compound is found in a laboratory or trip blank but not found in the associated sample, no action is taken.

- If a compound is found in a laboratory or trip blank and the associated sample, the following two rules (5X and 10X) apply:

  - The 10X rule applies to common laboratory contaminants (acetone, methylene chloride, and 2-butanone).

    - When concentration of the compound in the sample is greater than or equal to PQL or the reporting limit, but < 10X the highest concentration found in an associated laboratory or trip blank, consider the result as a nondetect and flag it with a (U).

    - When concentration of the compound in the sample is less than PQL or the reporting limit, and < 10X the highest concentration found in an associated laboratory or trip blank, report the result at PQL or the reporting limit with a (U) qualifier.

    - When concentration of the compound in the sample is ≥ 10X the highest concentration found in an associated laboratory or trip blank, the result is considered as positive, and no flag is required.

  - The 5X rule applies to compounds other than the VOC common laboratory contaminants listed previously.

    - When concentration of the compound in the sample is greater than or equal to PQL or the reporting limit, but < 5X the highest concentration found in an associated laboratory or trip blank, consider the result as a nondetect and flag it with a (U).

- When concentration of the compound in the sample is less than PQL or the reporting limit and < 5X the highest concentration found in an associated laboratory or trip blank, report the result at PQL or the reporting limit with a (U) qualifier.

- When concentration of the compound in the sample is ≥ 5X the highest concentration found in an associated laboratory or trip blank, consider the result as positive, and no flag is required.

- If inordinate amounts of other target compounds and/or TICs are found in any blank, this should be noted in the validation report. TICs found in blanks should be qualified by the "5X rule" in associated samples and qualified as unusable (R).

- If laboratory blanks were not analyzed at the required frequency, or if the laboratory blank was not run on the same GC/MS system as samples, associated data must be assessed using professional judgment.

- The same consideration given to target compounds should also be given to TICs found in both the sample and associated blank(s) (see Section 2.11 for TIC guidance).

2.6 Equipment Rinseates and ASTM Type II Source Water Check Samples

2.6.1 Review Items

Form 1s for equipment rinseates and ASTM Type II source water check samples associated with the collection of environmental samples and decontamination of sampling equipment.

2.6.2 Criteria

Ideally, no target analytes should be present in equipment rinseates and ASTM Type II source water check samples.

2.6.3 Evaluation

- o Review associated equipment rinseate and ASTM Type II source water check sample results to determine if contamination has resulted due to sample collection and equipment decontamination procedures.

- o All equipment rinseate and ASTM Type II source water check samples collected during the sampling event or field effort may need to be reviewed to determine if trends in contamination are occurring. For example, if 1 compound is detected in 80 percent of environmental samples, but only appears in 5 percent of the associated equipment rinseate samples, this is probably indicative of environmental contamination and sample results should not be qualified.

2.6.4 Action

- o Use professional judgment when qualifying sample results based on equipment rinseate and ASTM Type II source water check sample results. If contamination is present in these field QC samples, associated data must be carefully evaluated to determine whether there is an inherent variability in the data set, or if the problem is an isolated occurrence not affecting other data.

2.7 Surrogate Spikes or System Monitoring Compounds

2.7.1 Review Items

Form 2.

2.7.2 Criteria

- o The number and concentration of surrogate compounds specified in the method performed must be added to all samples and blanks to measure their recovery in sample and blank matrices.

- o Acceptance limits for surrogate spike recoveries for the method performed must be specified on the laboratory Form 2.

2.7.3 Evaluation

- o Review Form 2 to verify that surrogate recoveries for samples and blanks are within acceptance limits.

- o Verify that method requirements for re-analysis of samples based on surrogate recovery were followed.

2.7.4 Action

- o If a surrogate in the volatile sample has a recovery greater than the upper acceptance limit, detected volatile compounds are qualified as estimated (J) and nondetects are not qualified.

- o If a surrogate in the volatile sample has a recovery greater than or equal to ten percent, but less than the lower acceptance limits, qualify detected and nondetected compounds as estimated (J/UJ).

- o If any surrogate spike recovery is less than ten percent, detected volatile target compounds should be flagged as estimated (J) and nondetect volatile target compounds should be qualified as unusable (R).

2.8 Matrix Spike/Matrix Spike Duplicate

2.8.1 Review Items

Form 3.

2.8.2 Criteria

- o MS and MSD samples must be analyzed at a frequency of at least 1 MS and MSD per 20 samples of similar matrix.

- o MS recoveries should be within method-specific limits provided on Form 3.

- o RPD between MS and MSD recoveries should be within acceptance limits provided on Form 3.

2.8.3 Evaluation

- o Verify that MS and MSD samples were analyzed at the required frequency and results are provided for each sample matrix.

- o Ensure results for MS/MSD %R and RPD are within acceptance limits.

2.8.4 Action

No action is taken on MS/MSD data alone. Professional judgment must be used to evaluate MS/MSD results in conjunction with other QC criteria to determine if qualifications are necessary.

2.9 Laboratory Control Samples (If required)

2.9.1 Review Items

Form 3 and Form 1 for LCS.

2.9.2 Criteria

- o LCSs are analyzed at a frequency of one per SDG.

- o The LCS must be prepared and analyzed with samples reported in the SDG.

- o LCS %Rs must be within acceptance limits listed on Form 3.

2.9.3 Evaluation

Verify that LCS samples were analyzed at the required frequency and results are within acceptance limits.

2.9.4 Action

If LCS criteria are not met, professional judgment must be used to assess data for qualification. The following guidance is suggested for qualifying sample data for which the associated LCS does not meet required criteria.

- o If LCS recovery is greater than the upper acceptance limit, positive sample results for affected compounds should be qualified as estimated (J) and nondetects require no qualification.

- o If LCS recovery is less than the lower acceptance limit, positive results for affected compounds should be qualified estimated (J) and nondetects should be qualified as unusable (R).

2.10 Internal Standard Area and Retention Time Performance

2.10.1 Review Items

Form 8.

2.10.2 Criteria

- o IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated daily calibration standard. (For the CLP Low Concentration Water method, IS area counts must not vary by more than ± 40 percent from the associated calibration standard).

- o RT of the IS must not vary more than ± 30 s (± 20 s for the CLP Low Concentration Water method) from the RT of the associated calibration standard.

2.10.3 Evaluation

- o Verify that all RT and IS areas are within required criteria.

- o If two analyses were performed for a particular fraction, the validator must determine which are the best data to report. Considerations should include:

  - Magnitude and direction of the IS area shift.

  - Magnitude and direction of the IS RT shift.

  - Technical holding times.

  - Comparison of values of target compounds reported in each fraction.

  - Comparison of other QC data.

2.10.4 Action

- o If an IS area count for a sample or blank is outside - 50 percent or + 100 percent (± 40 percent for the CLP Low Concentration Water method) of the area of the associated standard:

  - Positive results for compounds quantitated using that IS should qualified as estimated (J).

  - Nondetected compounds quantitated using an IS area count > 100 percent (> 40 percent for the CLP Low Concentration Water method) should not be qualified.

  - Nondetected compounds quantitated using an IS area count < 50 percent (< 40 percent for the CLP Low Concentration Water method) are reported as the associated sample quantitation limit and qualified as estimated (UJ).

- o If extremely low area counts are reported, or if performance exhibits a major abrupt drop-off, severe loss of sensitivity is indicated. Nondetected target compounds should be qualified as unusable (R).

- o If an IS RT varies > 30 s (or >20 s for the Low Concentration Water SOW) from the associated standard, professional judgment must used. Validators may determine that positive results should be flagged as estimated (J), and nondetected semivolatile compounds for that IS should be qualified as unusable (R).

2.11 Tentatively Identified Compounds (if required)

2.11.1 Review Items

Form 1s for samples and blanks, and Form 4.

2.11.2 Criteria

- o For each sample, the laboratory must conduct a mass spectral search of the NIST library and report the possible identity for the VOC fraction peaks that are not surrogate spikes, ISs, or TCLs, but have areas or heights greater than ten percent of the area or height of the nearest IS. (For the CLP Low Concentration Water method, major ions must be > 25 percent relative intensity in the reference spectrum).

- o TIC results are reported for each sample on the Organic Analyses Data Sheet (Form 1). The number of TICs to be reported is specified in the analytical method or QAPP.

2.11.3 Evaluation

- o Form 1s for samples and laboratory blanks should be examined to verify that TICs reported in samples are not found in blanks. This is accomplished by comparing compound RTs reported on Form 1s for samples and blanks.

- o The reviewer should be aware of common laboratory artifacts/contaminants and their sources (e.g., carbon dioxide, diethyl ether, hexane, certain freons, aldol condensation products, solvent preservatives, and reagent contaminants). These may be present in blanks and not reported as sample TICs.

2.11.4 Action

- o TIC results should be flagged (NJ), tentatively identified, with approximated concentrations.

- o If the TIC is not found in any blanks, but is a suspected artifact of common laboratory contamination, the result may be qualified as unusable (R).

- o TIC results not sufficiently above the level in the blank should not be reported. (Dilutions and sample size must be taken into account when comparing the amounts present in blanks and samples.)

- o Similar isomers may be reported as a total number.

DATA VALIDATION CRITERIA FOR ORGANIC ANALYSIS VIA GAS CHROMATOGRAPHY

Refer to Table 10.2 of the QAPP for minimum laboratory data deliverables for HAZWRAP.

1.0 Validation of Pesticides and Polychlorinated Biphenyls by Gas Chromatography Analysis

1.1 Technical Holding Time

1.1.1 Review Items

Form 1, Form 10A and 10B, COC forms, case narrative, and laboratory sample receipt form.

1.1.2 Criteria

- For pesticides and PCBs in cooled (4°C ± 2°C) water samples, the holding time is 7 d from time of sample collection to extraction, and 40 d from sample extraction to analysis.

- For pesticides and PCBs in cooled (4°C ± 2°C) non-aqueous samples, the holding time is 14 d from time of sample collection to extraction, and 40 d from sample extraction to analysis.

1.1.3 Evaluation

- For sample extraction, compare the sample collection date on the COC form with the date of extraction on Form 1.

- For sample analysis, compare the dates of extraction and analysis reported on the Form 1. For samples requiring second-column confirmation, refer to Forms 10A and 10B for dates of analysis on both columns.

- Verify that samples were received intact at a temperature of 4°C ± 2°C. This information should be located on the laboratory sample receipt form.

1.1.4 Action

- o If samples were not received and maintained at 4°C ± 2°C, use professional judgment to evaluate the possible effect on data.

- o If criteria for holding times are exceeded, qualify positive results as estimated (J), and nondetects as estimated (UJ).

- o If holding times for sample extraction or analysis are grossly exceeded (i.e., by a factor of two or more), qualify positive results as estimated (J), and nondetects as unusable (R).

- o Use professional judgment in qualifying results for detected compounds when primary column analysis is performed within holding time, but second-column confirmation analysis exceeds holding time requirements.

1.2 Initial Calibration

1.2.1 Review Items

Form 6D, Form 6E, and Form 6F.

1.2.2 Criteria

- o A three- to five-point calibration of pesticide/PCB target compound standards containing surrogates must be analyzed at the beginning of each analytical sequence, or as necessary when continuing calibration acceptance criteria are not met.

- o Standards must be analyzed on each GC column and instrument used for analysis.

- o One calibration standard should be at or near PQL or the reporting limit (MDL for non-CLP methods), and standards should not exceed the working range of the GC system.

- o For external standard calibration: If the calibration factor RSD is constant over the working range (i.e., < 10-20 percent RSD), the average calibration factor may be used for sample quantitation in place of a calibration curve.

NOTE: The acceptable percent RSD for calibration factors is specified by the analytical method performed.

- For IS calibration: If the response factor RSD is constant over the working range (i.e., < 10-20 percent RSD), the average response factor can be used for sample quantitation.

NOTE: The acceptable percent RSD for response factors is specified by the analytical method performed.

1.2.3 Evaluation

- Verify that the correct number and concentration of standards were used for initial calibration, and that standards were analyzed on each column and instrument used for sample analysis.

- If the external standard calibration method was used for sample quantitation, ensure that the calibration factor percent RSD listed on Forms 6E and 6F meets method requirements.

- If the IS calibration method was used for sample quantitation, ensure that the response factor percent RSD listed on Forms 6E and 6F meets method requirements.

1.2.4 Action

- If the number and concentrations of calibration standards required by the method were not analyzed, samples associated with that calibration curve must be carefully evaluated to determine the usability of data.

- If the percent RSD linearity criteria are not met for compounds being quantified, qualify all associated positive quantitative results as estimated (J). When the percent RSD is grossly exceeded (i.e., > 50 percent), nondetects may be qualified as estimated (UJ).

1.3 Continuing Calibration

1.3.1 Review Items

Form 6D, Form 7, and Form 8.

1.3.2 Criteria

- o A continuing calibration standard must be analyzed at least daily to verify the calibration curve, calibration factors, or response factors. The concentration level and frequency of analysis of the continuing calibration standard is specified in the method performed.

- o The %D between the continuing calibration standard response for any parameter and the predicted response must be within limits specified by the method performed. (For methods SW-8080 and EPA 608, criteria are ± 15 %D).

1.3.3 Evaluation

- o Check Form 8 to verify that continuing calibration standards were analyzed daily and at the proper frequency and concentration.

- o Verify that RTs for target compounds in the continuing calibration standard are within RT windows established by the initial calibration listed on Form 6.

- o Verify that the continuing calibration standard %D from the initial calibration is within method-specified limits.

1.3.4 Action

- o If the continuing calibration standard was not analyzed as required, professional judgment must be used to determine if data should be qualified.

- o If continuing calibration standards do not fall within RT windows, associated sample results should be carefully evaluated. All samples injected after the last in-control standard are potentially affected.

- o If the %D exceeds criteria for the compound(s) being quantified, qualify all associated positive results as estimated (J). Nondetects should be qualified as estimated (UJ) when the difference exceeds 50 percent.

1.4 Laboratory Blanks

1.4.1 Review Items

Form 1 and Form 4.

1.4.2 Criteria

- o No contaminants should be present in laboratory blanks.

- o A method blank must be analyzed for each 20 samples of similar matrix in each SDG or whenever a sample extraction procedure is performed. A method blank must be analyzed on each GC column and instrument used to analyze the reported sample group.

1.4.3 Evaluation

- o Review the results of all associated laboratory blanks, Form 1 and Form 4, to evaluate the presence of target pesticides/PCBs.

- o Verify that a method blank analysis has been reported per SDG, per matrix, per concentration level and extraction batch, for each GC system used to analyze samples.

1.4.4 Action

- o If a target pesticide or PCB is found in a laboratory blank but not in the sample(s), no qualification is required.

- o Any pesticide or PCB compound detected in the sample and also detected in an associated laboratory blank is qualified if the sample concentration is < 5X the blank concentration:

- If the sample concentration is greater than or equal to PQL or the reporting limit, the result is considered a nondetect and qualified (U).

- If the sample concentration is less than PQL or the reporting limit, report the result at the PQL or reporting limit with a (U) qualifier.

o If the sample result is > 5X the blank result and greater than PQL or the reporting limit, the sample result is not qualified.

1.5 Equipment Rinseates and ASTM Type II Source Water Check Samples

1.5.1 Review Items

Results for equipment rinseates and ASTM Type II source water check samples associated with the collection of environmental samples and decontamination of sampling equipment.

1.5.2 Criteria

Ideally, no target analytes should be present in equipment rinseates and ASTM Type II source water check samples.

1.5.3 Evaluation

Review associated equipment rinseate and ASTM Type II source water results (Form 1s) to determine if contamination has resulted because of sample collection and equipment decontamination procedures.

1.5.4 Action

Use professional judgment when qualifying sample results based on equipment rinseate and ASTM Type II source water results. All equipment rinseate and ASTM Type II source water check samples collected during the sampling event or field effort may need to be reviewed to determine if trends in contamination are occurring.

1.6 Surrogate Spikes

1.6.1 Review Items

Form 2 and Form 8.

1.6.2 Criteria

- o Surrogate spikes are added to all samples, standards, blanks, and MSs to measure their recovery in sample and blank matrices. The number of surrogates and compounds to be used is specified in the analytical method performed.

- o Surrogate recoveries must be within acceptance limits listed on Form 2.

- o Surrogate RTs reported on Form 8 must be within calculated RT windows listed on Forms 6D and 6F.

- o Use professional judgment when surrogate recoveries in samples are not within acceptance limits for both GC column analyses. Qualification in this case should be based on the number of surrogate compounds outside recovery criteria and the magnitude of the exceedance of criteria.

1.6.3 Evaluation

- o Review Form 2 to verify that surrogate recoveries in samples and blanks are within acceptance limits.

- o Review Form 8 to verify that surrogate RTs are within calculated RT windows listed on Forms 6D and 6F.

1.6.4 Action

- o If a surrogate recovery is greater than the upper QC limit, qualify associated detected compound data as estimated (J). Nondetected compounds do not require qualification.

- o If a surrogate recovery is greater than or equal to ten percent, but less than the lower QC limit, qualify associated detected compound data as estimated (J), and nondetected compound data as estimated (UJ).

- o If any surrogate recovery is less than ten percent, detected target compounds must be qualified as estimated (J), and nondetects qualified as unusable (R).

1.7 Matrix Spikes/Matrix Spike Duplicates

1.7.1 Review Items

Form 3 and QC check sample results (if required).

1.7.2 Criteria

- o MS/MSD samples are analyzed at a frequency of at least 1 MS and MSD per 20 samples of similar matrix.

- o MS recoveries should be within control limits provided on Form 3.

- o RPD between MS and MSD recoveries should be within control limits provided on Form 3.

- o If required by the method, a QC check sample must be analyzed for compounds that do not meet the MS/MSD %Rs listed on Form 3.

1.7.3 Evaluation

- o Verify that MS and MSD samples were analyzed at the required frequency and that results are provided for each sample matrix.

- o Inspect MS/MSD results reported on Form 3 and verify that the results for recovery and RPD are within control limits.

- o If required by the method, ensure that a QC check sample was analyzed for MS compounds not meeting acceptance criteria.

1.7.4 Action

No action is taken on MS/MSD data alone. However, using the MS/MSD results in conjunction with other QC criteria, including QC check sample results, some qualification of the data may be required.

1.8 Laboratory Control Samples (If required by method)

1.8.1 Review Items

Form 3 and Form 1 for LCS.

1.8.2 Criteria

- o LCSs are analyzed at a frequency of 1 per 20 samples per SDG.
- o The LCS must be prepared and analyzed with the samples reported in the SDG.
- o LCS %Rs must be within acceptance limits provided on Form 3.

1.8.3 Evaluation

Verify that an LCS was analyzed at the required frequency and results are within acceptance limits specified on Form 3.

1.8.4 Action

If LCS criteria are not met, professional judgment must be used to assess the data for qualification. The following guidance is suggested for qualifying sample data for which the associated LCS does not meet required criteria:

- o If LCS recovery is greater than the upper acceptance limit, positive sample results for the affected compound(s) should be qualified as estimated (J). Nondetects do not require qualification.

- o If LCS recovery is less than the lower acceptance limit, associated detected target compounds should be qualified estimated (J) and all nondetects should be qualified as unusable (R).

1.9 Pesticide Cleanup Checks (If required)

1.9.1 Review Items

Form 9A and Form 9B.

1.9.2 Criteria

- o Florisil Cartridge Cleanup

  - The florisil cleanup procedure significantly reduces matrix interferences caused by polar compounds. Every lot number of florisil or florisil cartridges used for sample cleanup should be checked by spiking with selected pesticide compounds and a highly polar compound such as 2,4,5-trichlorophenol.

  - The lot of florisil cartridges is acceptable if recoveries for all pesticides and surrogates spiked are within 80-120 percent, and the recovery of 2,4,5-trichlorophenol is < 5 percent.

- o Gel Permeation Chromatography

  - Gel Permeation Chromatography (GPC) is used for the cleanup of samples that contain high molecular weight components that will interfere with analysis.

  - The GPC unit should be checked by spiking with the pesticide matrix spiking solution and a mixture of Aroclor 1016 and 1260.

  - The GPC calibration is acceptable if the recovery of pesticides in the matrix spiking solution is within 80 to 110 percent.

1.9.3 Evaluation

- o Florisil Cartridge Cleanup: Review Form 9A to verify that %Rs of the spiked pesticides are within 80-120 percent, and that the recovery of 2,4,5-trichlorophenol is < 5 percent.

- o GPC: Review Form 9B to verify that %Rs of pesticides in the matrix spiking solution are within 80-110 percent.

1.9.4 Action

- o If florisil cartridge check criteria are not met, use professional judgment to qualify data.

- o If zero recovery was obtained for the pesticide compounds and surrogates during either check, nondetected target compounds may be suspect and data may be qualified unusable (R).

- o If recoveries are > 120 percent for either check, positive results should be qualified as estimated (J) and nondetects require no qualification.

1.10 Target Compound Identification and Confirmation

1.10.1 Review Items

Form 1, Form 6D and 6F, and Form 10A and 10B.

1.10.2 Criteria

- o Second-column confirmation is required for all compounds detected on the primary column.

- o Compound identification must be within RT windows established by the daily calibration for <u>both</u> columns.

- o Both chromatographic columns will be required to have full calibration and be in control when analyses are performed.

- o The following guidance for reporting detected compounds confirmed by second-column confirmation is recommended:

  - When the confirmation column result is within ± 25 percent of the primary analysis, the primary column result shall be reported.

  - If the confirmation analysis is > 25 percent of the primary analysis, the lower of the two values shall be reported.

  - QC criteria (i.e., surrogate recoveries, MS/MSD recoveries, etc.) and holding time requirements must be considered when selecting which GC column result is to be reported.

1.10.3 Evaluation

- o For compounds detected and reported on Form 1, review Forms 10A and 10B to verify that sample RTs are within RT windows on both columns, and that confirmation on an alternate column was performed.

- o Evaluate the adherence to QC and holding time requirements for both GC column analyses for compound result reporting purposes.

1.10.4 Action

- o If sample compound RTs are not within RT windows specified on Forms 10A and 10B for both columns, the compound reported as detected should be considered nondetected.

- o If second-column confirmation was not performed for target compounds detected during the primary analysis, results should be qualified as unusable (R).

- Ensure that detected compound results have been reported according to guidance in Section 2.9.2.

DATA VALIDATION CRITERIA FOR MODIFIED METHOD 8015

1.0 Technical Holding Time

1.1 Review Items

Form 1, COC forms, case narrative, and laboratory sample receipt form.

1.2 Criteria

For Modified Method 8015 in cooled (4°C ± 2°C) water samples, the holding time is 7 days from time of sample collection to extraction, and 40 days from sample extraction to analysis.

For Modified Method 8015 in cooled (4°C ± 2°C) non aqueous samples, the holding time is 14 days from time of sample collection to extraction, and 40 days from sample extraction to analysis.

For Modified Method 8015 water and non aqueous Gasoline Range Organics (GRO) analysis, the holding time is 14 days from time of sample collection.

1.3 Evaluation

For sample extraction, compare the sample collection date on the COC form with the date of extraction on Form 1.

For sample analysis, compare the dates of extraction and analysis reported on the sample Form 1.

Verify that samples were received intact at a temperature of 4°C ± 2°C. This information should be located on the laboratory sample receipt form.

1.4 Action

If samples were not received and maintained at 4°C ± 2°C, use professional judgement to evaluate the possible effect on data.

If criteria for holding times are exceeded, qualify positive results as estimated (J), and nondetects as estimated (UJ).

If holding times for sample extraction or analysis are grossly exceeded (i.e., by a factor of two or more), qualify positive results as estimated (J), and nondetects as unusable (R).

Use professional judgement in qualifying results for detected compounds when primary column analysis is performed within holding time, but second-column confirmation analysis exceeds holding time requirements.

2.0 Initial Calibration

2.1 Review Items

Form 6F.

2.2 Criteria

A three- to five- point calibration of Modified Method 8015 target compound standards must be analyzed at the beginning of each analytical sequence, or as necessary when continuing calibration acceptance criteria are not met.

Standards must be analyzed on the GC column and instrument used for analysis.

One calibration standard should be at or near MDL, and standards should not exceed the working range of the GC system.

For external standard calibration: If the calibration factor RSD is constant over the working range (i.e., <10-20 percent RSD), the average calibration factor may be used for sample quantitation in place of a calibration curve.

Note: The acceptable percent RSD for calibration factors is specified by the analytical method performed.

For IS calibration: If the response factor RSD is constant over the working range (i.e. <10-20 percent RSD), the average response factor can be used for sample quantitation.

2.3 Evaluation

Verify that the correct number and concentration of standards were used for initial calibration, and that standards were analyzed on each column and instrument used for sample analysis.

If the external standard calibration method was used for sample quantitation, ensure that the calibration factor percent RSD listed on Form 6F meets method requirements.

If the IS calibration method was used for sample quantitation, ensure that the response factor percent RSD listed on Form 6F meets method requirements.

2.4 Action

If the number and concentrations of calibration standards required by the method were not analyzed, samples associated with that calibration curve must be carefully evaluated to determine the usability of data.

If the percent RSD linearity criteria are not met for compounds being quantified, qualify all associated positive quantitative results as estimated (J). When the percent RSD is grossly exceeded (i.e. > 50 percent), nondetects may be qualified as estimated (UJ).

3.0 Continuing Calibration

3.1 Review Items

Form 7 and Form 8.

3.2 Criteria

A continuing calibration standard must be analyzed every ten samples, at the beginning of the analysis, end of the shift or end of a set. to verify the calibration curve, calibration factors, or

response factors. If the response for any analyte varies by more than ± 15% a new calibration curve must be prepared for that compound

The %D between the continuing calibration standard response for any parameter and the predicted response must be within ± 15%..

3.3 Evaluation

Check Form 8 to verify that continuing calibration standards were analyzed daily and at the proper frequency and concentration.

Verify that RTs for target compounds in the continuing calibration standard are within RT windows established by the initial calibration listed on Form 6.

Verify that the continuing calibration standard %D from the initial calibration is within the method-specified limits.

If the continuing calibration standard was not analyzed as required, professional judgement must be used to determine if data should be qualified.

If continuing calibration standards do not fall within RT windows, associated sample results should be carefully evaluated. All samples injected after the last in-control standard are potentially affected.

If the %D exceeds criteria for the compound(s) being quantified, qualify all associated positive results as estimated (J). Nondetects should be qualified as estimated (UJ) when the difference exceeds 50 percent.

4.0 Laboratory Blanks

4.1 Review Items

Form 1 and Form 4.

4.2 Criteria

No contaminants should be present in laboratory blanks.

A method blank must be analyzed for each 20 samples of similar matrix in each SDG or whenever a sample extraction procedure is performed. A method blank must be analyzed on each GC column and instrument used to analyze the reported sample group.

4.3 Evaluation

Review the results of all associated laboratory blanks, Form 1 and Form 4, to evaluate the presence of potential target range compounds.

Verify that a method blank analysis has been reported per SDG, per matrix, per concentration level and extraction batch, for each GC system used to analyze samples.

4.4 Action

If a target range compound is found in a laboratory blank but not in the sample(s), no qualification is required.

The sum of all target range compounds detected in the sample and also detected in an associated laboratory blank is qualified if the sample concentration is <5X the blank concentration:

If the sample concentration is ≥ the EQL or reporting limit, the result is considered a nondetect and qualified (U).

If the sample concentration is < the EQL or reporting limit, report the result at the EQL or reporting limit with a μ qualifier.

If the sample result is >5X the blank result and greater than the CRQL or reporting limit, the sample result is not qualified.

5.0 Equipment Rinseates, Trip Blanks, ANS ASTM Type II Source Water Check Samples

5.1 Review Items

Results for equipment rinseates, trip blanks, and ASTM Type II source water check samples associated with the collection and shipping of environmental samples and decontamination of sampling equipment.

5.2 Criteria

Ideally, no target analysis should be present in equipment rinseates, trip blanks, ASTM Type II source water check samples.

5.3 Evaluation

Review associated equipment rinseate, trip blanks, and ASTM Type II source water results (Form 1s) to determine if contamination has resulted because of sample collection shipment and equipment decontamination procedures.

5.4 Action

Use professional judgement when qualifying sample results based on equipment rinseate, tip blanks, and ASTM Type II source water results. All equipment rinseate and ASTM Type II source water check samples collected during the sampling event or field effort may need to be reviewed to determine if trends in contamination are occurring.

6.0 Matrix Spikes/Matrix Spike Duplicates

6.1 Review Items

Form 3, QC check sample results (if required).

6.2 Criteria

MS/MSD samples are analyzed at a frequency of a least 1 MS and MSD per 20 samples of similar matrix.

MS recoveries should be within control limits provided on Form 3.

RPD between MS and MSD recoveries should be within control limits provided on Form 3.

If required by the method, a QC check sample must be analyzed for compounds that do not meet the MS/MSD %Rs listed on Form 3.

6.3 Evaluation

Verify that MS and MSD samples were analyzed at the required frequency and that results are provided for each sample matrix.

Inspect MS/MSD results reported on Form 3 and verify that the results for recovery and RPD are within control limits.

If required by the method, ensure that a QC check sample was analyzed for MS compounds not meeting acceptance criteria.

6.4 Action

No action is taken on MS/MSD data alone. However, using the MS/MSD results in conjunction with other QC criteria, including QC check sample results, some qualification of the data may be required.

7.0 Target Compound Identification and Confirmation

7.1 Review Items

Form 6 and Form 10

7.2 Criteria

Compound identification must be within RT windows established by the daily calibration of the column.

The chromatographic column will be required to have full calibration and be in control when analyses are performed.

7.3 Evaluation

For compounds detected and reported on Form 1, review Form 10 to verify that sample RTs are within RT windows on both columns, and that confirmation on an alternate column was performed.

Evaluate the adherence to QC and holding time requirements for both GC column analyses for compound result reporting purposes.

7.4 Action

If sample compound RTs are not within RT windows specified on Form 10, the compound reported as detected should be considered nondetected.

APPENDIX C
STANDARD OPERATING PROCEDURES

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STANDARD OPERATING PROCEDURES
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STANDARD OPERATING PROCEDURE NO. 1
MAGNETIC GEOPHYSICAL TECHNIQUES

1.0 OBJECTIVE

The objective of this procedure is to delineate specific procedures for conducting surface geophysical surveys, including total field and gradient surveys, using magnetic techniques. These techniques may be used to

- locate buried ferrous debris (e.g., 55-gal drums, ordnance, scrap metal);
- define boundaries of trenches or landfills containing ferrous material;
- locate ferrous underground utilities (e.g., pipes and tanks);
- select intrusive sites that are clear of buried metal obstructions;
- locate permeable pathways associated with nonorganic contaminants; and
- map regional geologic structure.

2.0 BACKGROUND

Magnetic surveys are used to measure the earth's magnetic field and variations of the field. For environmental applications, such a survey is used principally to detect ferrous metal in the subsurface. Magnetometers can detect small, localized variations in the earth's magnetic field. Magnetic surveys typically are performed using a fluxgate, proton precessional, or optically pumped (cesium vapor-type) magnetometer. Although there are differences in resolution between each of these instruments, the most common type of magnetometer used for environmental or engineering surveying is the proton precessional magnetometer. Therefore, this SOP will restrict discussions to this type of magnetometer for basic operational information because survey design will not change as a result of equipment differences.

The proton precessional magnetometer is mounted on a staff and has a sensing chamber that is filled with a proton-rich fluid (Decane). When a small, alternating current is passed through a current coil within the chamber, a small magnetic field is produced. Protons within the fluid align themselves with this temporary magnetic field. When the current is turned off, the magnetic field ends and the protons attempt to realign (precess) about the earth's magnetic field. A small signal is generated by the precessing protons in the same coil used to polarize them. The signal

measured is directly proportional to the total magnetic field intensity at that location. This intensity is displayed digitally on the magnetometer and expressed in nanotesla or the equivalent magnetic term of gammas. The unit of magnetic measurement is the nanotesla, but historically was defined as the gamma. Therefore, most magnetometers in use today and existing field data and literature are expressed in gammas.

$$1\ GAMMA = 1\ NANOTESLA\ (NT) = 10^{-9}\ TESLA = 10^{-5}\ GAUSS$$

Magnetic gradiometry (gradient surveys) uses the same instrumentation as routine magnetic surveys and includes two total field magnetometer sensors mounted vertically on a staff with a typical separation of either 1.5 or 3 ft between the two sensors. The acquisition system collects data from both sensors simultaneously (or nearly so); the difference between the two intensities is the vertical magnetic gradient. The response of the gradiometer varies by one over the distance to the target to the fourth power ($1/d^4$) compared to one over the distance cubed ($1/d^3$) for the total field magnetometer (Benson et al., 1983). This fundamental difference results in the total field magnetometer's being more sensitive but also more susceptible to noise. Conversely, the gradiometer is less sensitive to the magnetic field. However, it is also less sensitive to background magnetic noise, which allows for better definition of near-surface anomalies; and it automatically corrects for regional gradient and time variations of the Earth's magnetic field. (please review last two sentences and compare with original to ensure I did not change the meaning) These corrections will be discussed later in the text. Because of the nature of most geophysical targets within the environmental field, HAZWRAP recommends using a magnetic gradiometer for the mobile field magnetometer in most surveys.

Magnetic values (or magnetic gradient values) are plotted on a map so their variation over the site can be analyzed. Buried subsurface metal can be indicated by anomalously high values or changing values. Magnetic response is proportional to the mass of the subsurface magnetic material. Typically, a single 55-gal drum can be detected to a depth of 20 ft. Large concentrations of drums can be detected at depths of 30 to 40 ft or more.

3.0 RESPONSIBILITIES

Site Manager: The Site Manager, or Field Team Leader, is responsible for ensuring that field activities are completed to meet the project objectives, are conducted in accordance with the project plans and requirements, and that all activities are performed according to the respective procedures. The Site Manager is responsible for ensuring that all site personnel are trained in the procedures, that the procedures are adhered to, and that all activities are documented.

Field Team: All members of the field team (samplers, technicians, field geologists, engineers, etc.) are responsible for understanding and implementing this field procedure as well as ensuring that all of the team members also perform in accordance with this procedure.

It is the responsibility of all field personnel to identify, document, and submit recommendations to improve the quality, usability, and implementability of this procedure.

4.0 REQUIRED EQUIPMENT

The following equipment is necessary to properly complete a magnetic survey:

- two magnetometers [one field (mobile) and one base station recording magnetometer];
- field notebook (waterproof, bound type);
- indelible, waterproof pen;
- site map;
- nonferrous tape measure [minimum of one 15-m (50-ft) tape, but four 100-m (300-ft) tapes simplify survey layout];
- measuring wheel (1-ft increment minimum, nonconductive). (This equipment is optional if four nonferrous tape measures are used for the survey.);
- wooden stakes, plastic surveyor's flags, or PVC pipe to mark survey corners (must be nonferrous material if present during survey);
- surveyor's flagging;
- black electrical tape (for unexpected repairs); and
- personal computer
  - IBM PC, PC/AT, PC/XT, and compatibles;

- minimum 640K available memory;
- DOS 2.1 or higher;
- floppy drive (5.25-in. or 3.5-in.);
- VGA, EGA, or CGA graphics capability; and
- serial port (RS-232); and

- software to
  - download data stored in the magnetometers memory,
  - generate ASCII data files for submission to HAZWRAP,
  - perform diurnal corrections on the data,
  - produce profile plots,
  - produce contour diagrams, and
  - produce final interpretive diagrams.

5.0 PROCEDURES

5.1 SETUP

Setup consists of preparing the site and personnel for the survey to be performed. The setup procedure ensures that certain minimum preparations have been made before initiation of any data collection. Proper initiation procedures include

- informing the field personnel of all known hazards that may pose a potential threat to their safety; (this information will be conveyed and understood by all members of the survey team, particularly the Site Manager and Health and Safety Officer, who have direct responsibility for the survey teams safety);
- clearly defining the purpose and expectations of the subsurface investigation;
- reviewing all existing site conditions data available that may impact the data quality objectives of the survey; and
- defining general field parameters appropriate for the purpose of the survey (total magnetic field vs magnetic gradient measurements).

Defining general field parameters must also consider the following:

- Spacing between stations controls the lateral degree of resolution available (i.e., size of the anomaly that can be resolved); a spacing of 5 to 100 ft is commonly used. Actual station spacing chosen must weigh resolution desired. The spacing must be less than the lateral variation of the anomaly that is expected;
- Definition of a magnetic anomaly requires several (three or more) anomalous readings; and
- Background magnetic noise must be evaluated and/or determined to assess the potential usefulness of a magnetic survey. High noise levels can make interpretation difficult and can cause significant anomalies to be overlooked. Actual background noise must be considered during data collection and interpretation.

The survey grid can now be established according to specification listed in SOP 3A. Note all line locations, azimuths, and lengths of the original survey lines in the field notebook.

5.2 CALIBRATION

Calibration of the magnetometer is generally completed by the manufacturer and will not be required in the field. However, because of the nature of the earth's magnetic field, variations in intensity may occur over time. Variations that occur during the course of the day are known as diurnal variations and may exhibit intensity changes of 100 gammas or more. Superimposed on the diurnal variations are less-intense, shorter-period variations known as micropulsations. Micropulsations may cause changes of a thousandth of a gammas to tens of gammas and are generally more random in behavior than diurnal variations.

Because of these natural variations in the magnetic field, it is necessary to collect data that will be used to "correct" the survey data. This is step completed by placing a base station magnetometer at a location that is relatively free from magnetic interference (cars, people, fences, buildings, etc.) to collect magnetic data at short time intervals. The base station magnetometer should be placed a sufficient distance away from objects that can cause magnetic field disturbances and no further than 50 miles from the survey location. Table 1 lists estimated anomaly intensities with respect to distance for several commonly encountered objects. The maximum time between acquisition of base station data should be 5 min but is commonly less. To determine the acquisition time interval between automated base station recordings, estimate the time between

successive data collected from the mobile field magnetometer. A base station reading should be collected before and after each individual field magnetic reading. Therefore, if data are acquired with the mobile magnetometer at an average of every 20 sec, the base station should be collecting data every 10 sec. This will minimize interpolation errors when performing postsurvey diurnal corrections. Available memory on the base station magnetometer and equipment limitations (most proton precessional magnetometers can only collect a data point every 3 or 4 sec) must also be considered when determining the proper acquisition time interval. The base station data are then used during reduction of the day's survey data to filter out the natural magnetic variations from those caused by variations in subsurface or surface conditions along the survey grid. Additionally, if the survey is expected to encompass more than 1 day, comparisons between data collected on different days can be made to determine whether major magnetic storms occurred during the survey. This information can be used to determine whether data precision is acceptable because it may be impossible to collect high-resolution magnetic data during large magnetic storms.

Table 1. Anomaly intensities of common objects (modified after S. Breiner 1973)

Object description	Near distance (m)	Magnetic intensity (Nt)	Far distance (m)	Magnetic intensity (Nt)
Automobile (1 ton)	10	40	30	1
Ship (1000 tons)	30	300 to 700	300	0.3 to 0.7
Light aircraft	7	10 to 30	15	0.5 to 2
Steel file (25 cm long)	1.5	50 to 100	3	5 to 10
Screwdriver (12 cm long)	1.5	5 to 10	3	0.5 to 1
Revolver (.38 or .45 automatic, assuming that the induced magnetization is approximately equal to the permanent magnetization)	1.5	3 to 7	3	1 to 2
Rifle	1.5	10 to 50	3	2 to 10
Ball bearing (2 mm)	0.08	4	0.16	0.5
Cyclone fence	3	20	7.5	1 to 2
Steel pipeline (30 cm diameter)	7.5	50 to 200	15	12 to 50
DC train	150	5 to 200	300	1 to 50
Steel well casing and wellhead	15	200 to 500	150	2 to 5
55-gal steel drum (~18 kg/40 lb)	1.5	80	3	12

5.3 DATA COLLECTION

A standard field procedure for collecting magnetic survey data is described below.

- The instrument battery will be checked for sufficient charge and the instrument tested using manufacturer's procedures for proper operation;

- Set up the base station magnetometer according to the manufacturer's instructions. The base station should be at a location that is free from magnetic interference and should be at the same location each day if surveys are conducted over more than 1 day;

- Check the tuning of the instrument to ensure that the magnetic field reading agrees with the nominal value of the magnetic field shown for the region. More-accurate values for each survey region are available from current magnetic intensity maps or commercially available computer programs;

- Synchronize the base station and mobile field magnetometer's date and time functions to allow for postsurvey data corrections for diurnal fluctuations and micropulsations. Data for the mobile field magnetometer should be simultaneously collected with the base station magnetometer at the base station location at the beginning and end of each day. This simple quality control check helps determine daily equipment operation and consistency and, in the event of an equipment failure during the survey, allows the geophysicist to determine what survey data collected are still acceptable and which data should be discarded. This step assists in identifying equipment problems early, and only a maximum of 1 day of surveying may need to be repeated in case of an equipment failure;

- A visual survey along the proposed lines will be conducted. The visual survey will include a review of site utility plans and notations of overhead wires, manhole covers, buried cables, or indications of buried pipe lines. Site locators will assist in confirming the presence of any possible telephone and utility features;

- Excessive amounts or large pieces of metal on the ground surface will be noted in the field notebook;
- During each reading, the arrow on the magnetometer sensing chamber should be oriented towards magnetic north, and the sensor staff must remain vertical during measurements; and
- Take a reading at each survey location. Additional readings are required in the following cases:
  - no signal or a weak signal is generated by the sensor, or
  - abnormally high gradient or noisy conditions are indicated by the magnetometer.

The reading used for this location will be an average value of the consecutive readings collected at this location.

- Record readings, time of the readings, and station location in a field notebook or data logger;
- The above procedure will be continued for each station along the line;
- Data will be downloaded from the data logger or field notebook to the computer for analysis;

6.0 DATA REDUCTION AND INTERPRETATION

The standard procedure for reducing and interpreting magnetic data follows.

- Magnetic values must be corrected for magnetic drift and corrected values plotted at each station location, thus producing a series of profiles or a grid plot. Data should also be contoured to determine what variations of the magnetic field exist; and
- Using available information (borehole, geophysical, site conditions), interpret the magnetic anomalies with respect to possible sources.

7.0 RESTRICTIONS/LIMITATIONS

As with all geophysical techniques, the effectiveness of magnetic surveys is greatly affected by the data interpretation and technique applicability. Geophysical data should always be interpreted by an experienced geophysicist with the assistance of the best available site information. For

example, if a magnetic survey is to be conducted to locate a drum burial site, site information regarding reputed burial locations and other potential targets that may interfere with burial site location should be reviewed before conducting a survey and during data collection and interpretation. Additional limitations that may affect the usefulness of magnetic surveys are the existence of magnetic storms. Magnetic storms are large (several hundred gammas) variations in the earth's magnetic field that may occur suddenly several times a month and are generally related to high levels of solar activity (i.e., sunspots, etc.). The high intensity of magnetic storms makes high-resolution magnetic measurements nearly impossible, even with base station corrections. It is recommended to monitor WWV 5, 10, 15, 25 MH for solar flux rates before beginning field activities. Finally, magnetic surveys cannot always be successfully conducted in congested areas that contain large magnetic sources (i.e., power lines, railroad switchyards, communication lines, etc.).

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STANDARD OPERATING PROCEDURE NO. 2
EM-34 TERRAIN CONDUCTIVITY METER

1.0 OBJECTIVE

The objective of this procedure is to delineate specific procedures for collecting electromagnetic (EM) data using the Geonics EM-34 Terrain Conductivity Meter. Additionally, this document will provide guidance for the proper use of this technique (including proper application, survey design, pitfalls, and data interpretation).

2.0 BACKGROUND

The EM-34 is an EM tool that can be used to perform terrain conductivity surveys via inductive measurement. EM surveys can be used as a nondestructive, noninvasive, and potentially cost-effective method to aid in characterizing and assessing potentially contaminated sites.

EM surveys measure the electrical conductivity of the subsurface soil, rock, and groundwater. Conductivities measured by the EM-34 generally are a function of the physical properties of the soil and rock such as magnetic susceptibility, porosity, and permeability. Terrain conductivity measurements can also vary as a function of the physical properties of pore fluids (groundwater) contained in the subsurface materials. Varying conductivities can be attributed to:

- soil moisture content;
- stratigraphy;
- fractures;
- voids;
- pore fluid composition;
- localized organic content, clay, sand gravel, or salt-rich zones (mineralogy); and
- EM anomalies (e.g., power lines and electric fences).

The EM-34 can be operated in both horizontal and vertical dipole modes and at three coil spacings, thus giving the user the ability to perform profiling using six instrument configurations. This aspect permits the user to collect EM data from six different depths with the EM-34, and essentially results in a separate sounding at each data collection point on a survey line. It is

important to note, however, that data collected from the deeper effective depths are a result of the combined conductivities of the preceding (upper) layers. This generally results in a smearing of the true conductivity variation with depth unless proper data reduction techniques are used.

Although the EM-34 can be used in six instrument configurations, the operation of the instrument does not vary with the configuration. Additionally, profiling and sounding operations are identical except that soundings are simply profiles conducted at one location. As a result, the procedures and equipment described in the following sections can be used for all EM-34 configurations and applications.

3.0 RESPONSIBILITIES

Site Manager: The Site Manager, or Field Team Leader, is responsible for ensuring that field activities are completed to meet the project objectives, are conducted in accordance with the project plans and requirements, and that all activities are performed according to the respective procedures. The Site Manager is responsible for ensuring that all site personnel are trained in the procedures, that the procedures are adhered to, and that all activities are documented.

Field Team: All members of the field team (samplers, technicians, field geologists, engineers, etc.) are responsible for understanding and implementing this field procedure as well as ensuring that all of the team members also perform in accordance with this procedure.

It is the responsibility of all field personnel to identify, document, and submit recommendations to improve the quality, usability, and implementability of this procedure.

4.0 REQUIRED EQUIPMENT

The following is a list of equipment necessary for the proper completion of an EM survey using the EM-34:

- Geonics EM-34 Terrain Conductivity Meter and associated cables;
- field notebook (waterproof, bound type);
- indelible ink pen;
- site map;

- engineer's tape measure (50-ft minimum);
- measuring wheel (1-ft increment minimum);
- stakes or surveyor's flags;
- surveyor's flagging; and
- black electrical tape.

5.0 PROCEDURES

5.1 SETUP

Setup consists of preparing the site for the survey to be performed. The setup includes layout of the survey locations on the ground so the survey can be repeated both with different coil spacings and during subsequent surveys (later dates or additional geophysical techniques). This does not necessarily require professional surveying; however, should the ends of profile lines or the locations of EM soundings be surveyed so that the work performed can be repeated at a later date. The setup should proceed as follows:

- Mark the survey lines with stakes and flagging at sufficient intervals. Indicate the line designation (number or letter) and location on each stake; and
- Using the measuring wheel and surveyors flags, mark the reading locations (at the desired spacing) between the line endpoints. The field technician should assist to ensure a straight survey line.

Note all line locations, azimuths, and lengths in the field notebook.

5.2 CALIBRATION

The EM-34 is calibrated by the manufacturer (Geonics); however, on large-scale projects and when the potential for resurveying an area with a different instrument or at a later date is high, a local standard site in the field must be chosen to provide a reference base station. This will allow the user to check for instrument drift or variations between instruments. To complete the calibration reading, perform the following steps:

1. Select a site away from surface or subsurface interference and obtain a reading with the EM-34 in the various instrument configurations that will be used or have been used in the past for surveys. Obtain readings at the start and end of each day;
2. In the field notebook, record the time, site location, orientation of the instrument (i.e., azimuth of long axis of instrument configuration), instrument configuration (coil spacing, coil orientation), and the EM reading; and
3. During subsequent surveys, obtain calibration readings at the same locations and at the same frequencies as those in the original survey.

The calibration readings can be used to note and correct for variations in the instrument or variations between instruments.

5.3 DATA COLLECTION

Data collection for EM profiles consists of traversing the survey lines and recording conductivity readings at designated intervals and at various coil spacings. Data collection for EM soundings consists of recording conductivity values at a single location at various coil spacings. For both sounding and profiling, the data recording procedure is the same except profile data are recorded at various locations and sounding data at one location.

1. Set up the EM-34 according to the manufacturer's instructions. Begin profiling and sounding with the shortest coil spacing;
2. Mark the center of the connecting cable with surveyor's flagging so that it is clearly visible;
3. With the center of the connector cable at the first reading location, record the conductivity reading and location in the field notebook;
4. If sounding, repeat steps 1–3 with the next coil spacing;
5. If profiling, proceed to the next location on the survey line and, with the center of the connector cable at the location, record the conductivity reading and location. Repeat until data at all locations on the survey line have been recorded;
6. Repeat steps 3 and 4 for all survey lines in close proximity to each other; and
7. When finished, repeat all steps with the next coil spacing.

The above process may be repeated six times in the following EM-34 system configurations:

Horizontal dipole (vertical coils) mode:
- 10-ft coil spacing
- 20-ft coil spacing
- 40-ft coil spacing

Vertical dipole (horizontal coils) mode:
- 10-ft coil spacing
- 20-ft coil spacing
- 40-ft coil spacing

The number of configurations used to collect site data will vary depending on the goals of the survey. Please refer to the technical guidance for EM techniques at the beginning of this section for guidelines regarding survey design.

6.0 RESTRICTIONS/LIMITATIONS

As with all geophysical techniques, the effectiveness of EM surveys using the EM-34 are greatly affected by the data interpretation and technique applicability. Geophysical data should always be interpreted by an experienced geophysicist with the assistance of a qualified scientist from the field of study in which the data are to be applied. For example, if the data are to be used to evaluate geologic and hydrogeologic conditions beneath a site, the data should be interpreted with the assistance of both a hydrogeologist and a geologist so that any interpretation provides realistic and necessary information.

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STANDARD OPERATION PROCEDURE NO. 3
GROUND-PENETRATING RADAR SURVEY

1.0 OBJECTIVE

The objective of this procedure is to delineate specific procedures for use of ground-penetrating radar (GPR) surveys. Additionally, this document will provide guidance for the proper use of this technique (including proper application, survey design, pitfalls, and data interpretation).

2.0 BACKGROUND

GPR systems are similar to electromagnetic (EM) systems in that a source and a receiver are needed. A radar antenna (source) emits an EM pulse several times a second. These EM impulses are then directed into the ground in the form of waves. As the waves penetrate deeper through the geologic material, contrasts in electrical properties are encountered with changes in strata. These electrical contrasts (anomalies) cause some of the wave to be reflected back toward the surface, where it is received by an antenna, while some of the wave continues downward. The time interval between the point when the EM signal is emitted to the time it is reflected and received is dependent on the properties of the material and on the depth at which the signal is reflected.

The contrasts in electrical properties are a function of the composition of the materials and moisture contents. Generally, good conductors, such as metal drums, reflect the entire radar signal (EM wave), so there is no penetration below this point. Poor conductors, such as unsaturated sands, will generally allow for a deeper radar signal penetration than good conductors such as saturated clays or saline water. Typical GPR antennae range in frequency from 10 megahertz (MHz) to 1000 MHz, with 300 to 600 MHz being considered as standard. The lower the frequency, the larger the antenna, so some lower-frequency antennae are commonly towed by vehicles, while the higher-frequency ones can be towed by an individual. Although lower-frequency antennae permit deeper penetration, they lack the resolution of the higher-frequency antennae. Typical penetration in stratified saturated sands for the 300-MHz antenna is about 50 ft and for the 600-MHz antenna about 25 ft.

GPR equipment does not sense only straight below the antenna; instead, it senses forward, backward, and to the sides at various angles. For this reason, some objects can be detected without having the equipment pass directly overhead.

3.0 RESPONSIBILITIES

Site Manager: The Site Manager, or Field Team Leader, is responsible for ensuring that field activities are completed to meet the project objectives, are conducted in accordance with the project plans and requirements, and that all activities are performed according to the respective procedures. The Site Manager is responsible for ensuring that all site personnel are trained in the procedures, that the procedures are adhered to, and that all activities are documented.

Field Team: All members of the field team (samplers, technicians, field geologists, engineers, etc.) are responsible for understanding and implementing this field procedure as well as ensuring that all of the team members also perform in accordance with this procedure.

It is the responsibility of all field personnel to identify, document, and submit recommendations to improve the quality, usability, and implementability of this procedure.

4.0 REQUIRED EQUIPMENT

The following is a list of equipment necessary for the proper completion of a EM survey using GPR.

- GPR system;
- field notebook (waterproof, bound type);
- indelible ink pen;
- site map;
- engineer's tape measure (50-ft minimum);
- measuring wheel (1-ft increment minimum);
- stakes or surveyor's flags;
- surveyors flagging; and
- black electrical tape (for unexpected repairs).

The standard array of GPR instrumentation consists of a transmitter/antenna unit(s), a DC power supply, a control unit, the signal-processing circuitry connected to the antenna by a cable, an oscillograph or video display unit, and a plotter or an analog or digital recording device. The field equipment may be vehicle mounted, but it is small enough to be hand carried into areas not having vehicle access. Examples of GPR units are Geophysical Survey Systems, Inc.'s (GSSI) SIR System 8 and System 10 systems. Both GSSI systems use impulse radar technology to sense and record continuous, high-resolution profiles of subsurface materials.

The primary variable in GPR instruments is the antenna configuration. Antennas currently are available in both monostatic (one-piece) and bistatic (two-piece) configurations and are generally designed to detect radar signals ranging from 60 to 1000 MHz.

5.0 FIELD PROCEDURES

5.1 PLANNING

The planning phase of a GPR survey requires the development of information pertaining to the geophysical characteristics of the site and how these characteristics might vary across the area to be surveyed. The type and structure of soils and geologic formations are critical factors that should be known. In addition to developing information about the characteristics of earth materials present at the site, the Project/Field Geophysicist needs to develop information about the targets of interest and factors that may interfere with execution of the survey or cause excessive noise in the acquired data. If possible, it is useful to know the depth, size, shape, and type of potential targets to be detected. The depth and size of the objects are very important factors that permit the appropriate antenna configuration and spacing between survey lines to be selected. Surveys over known objects on site are useful to cross-check calculations; however, they are not absolutely necessary. Other specifications include accuracy of locational resolution desired, probable weather conditions during site activities, and the type and sophistication required for data interpretation and presentation.

The important instrument selection decision for the survey lies in the determination of the optimal antenna. Generally, the higher the antenna frequency, the smaller the object that it can resolve and the smaller its depth of penetration. The optimal antenna is the one with the highest resolution that will have sufficient depth of exploration. However, the depth of penetration for a given

antenna will vary widely between sites, primarily because of soil moisture content and the clay/sand ratio of the soils. Overnight rainfall can often elevate the soil moisture content such that an antenna's depth of penetration can be degraded by 30% in a few hours. No one antenna configuration is suitable for all cases, even at the same site. Ideally, the survey crew should carry multiple antennas to the site for the survey so that an optimal configuration is always available.

The survey grid should be designed such that the GPR measurements are spaced to adequately define the distribution and extent of the exploration targets. For convenience, an orthogonal survey grid, located relative to a known location, is usually established over the survey area and the GPR measurements and anomalies are located by their grid coordinates (x,y). This is a convenient method for recording the data in an organized manner, for graphically displaying the data, and for ease of locating the anomalies detected. For determination of geologic features or to detect large targets, reconnaissance-type, low-resolution surveys are typically performed with a track spacing of 5 to 15 ft. Surveys to detect small discrete targets or to resolve target details require a track spacing of 2 to 5 ft.

5.2 SITE LAYOUT

Setup consists of preparing the site for the survey to be performed. This includes layout of the survey locations on the ground so that the survey can be repeated both with different coil spacings and during subsequent surveys (later dates or additional geophysical techniques). This does not necessarily require professional surveying; however, the ends of profile lines should be referenced to known features so that the work can be repeated at a later date.

Clearly mark the survey lines with stakes and flagging at sufficient intervals so that the line can be easily followed (survey preferable). Clearly indicate the line designation (number or letter) and location on each stake. Using the measuring wheel and surveyors flags, mark the reading locations (at the desired spacing) between the line endpoints. The Field Technician should spot the line to maintain a straight survey line. Note all line locations, azimuths, and lengths in the field notebook. Traverse spacing should be designed so that the target of interest will not be "missed" by the survey.

GPR surveys are performed by establishing a grid of parallel survey lines across the site and moving the radar antenna along each of these lines. Spacing between the lines is dependent on

the size and depth of the targets of interest and the objectives of the survey (i.e., reconnaissance or detailed survey). GSSI systems employ an electronic marking device that records a mark on direct field graphic records or within digital radar files. Generally, double marks or clicks are made at the beginning and end of the survey lines and single clicks are recorded as the antenna passes over predetermined distance intervals. Following acquisition of data in the field, the data are downloaded from digital tape to magneto-optical storage media for subsequent processing and analysis in the office. This provides an efficient means of accessing the data, as well as redundant storage.

5.3 DEPTH DETERMINATION

To determine the depth of anomalies noted on radar profiles, convert the travel-time data actually recorded to depths by determining the transmission velocity(ies) associated with the earth's materials. The velocity of electromagnetic waves within the subsurface at the site may be determined through excavation of observed targets to determine their depth of burial. Several excavations may be made and an average or range of transmission velocities for materials at a given site may be determined. After velocity values are determined, interpretations or determinations concerning the depths of other signatures or anomalies may be made. Two other simpler methods, discussed in the following section, provide a simple means of determining the radar-wave velocities through subsurface materials and, therefore, a means for converting travel times to depths. These are two graphical approaches, one involving examination of hyperbolic signatures and the other involving the examination of changes in the travel time within a given subsurface section as the transmitter and receiver antenna (bistatic configuration) are moved away from each other. The latter is referred to as wide-angle radar reflection measurements.

5.4 GROUND-PENETRATING RADAR SURVEY MEASUREMENTS

After an optimal GPR survey configuration has been determined, the survey itself is straightforward (barring changes in the subsurface electrical characteristics). The unit is activated and the antenna is towed along one of the prearranged grid lines. An electronic mark is placed on the data at the beginning and end of each survey line and at every 10- or 20-ft interval along the line so that the position of the data and anomalies on each radar line are readily apparent. The locations of surface metal, utilities, walkways, etc., are noted in the logbook during the survey.

5.5 QUALITY CONTROL AND CALIBRATION

5.5.1 Quality Control

Quality control (QC) procedures for GPR surveys require that trained geophysicists be used in all aspects of the survey including the preparation of the project work plans and survey designs, conduct of the survey, interpretation of the data, and presentation of the results. Work plans should be written such that some degree of latitude is given to the survey team so that they may adjust to site conditions. The objectives of the survey in terms of the (1) degree of detail needed and the size of the area to be surveyed; (2) type, depth, size, and composition of targets of interest (if known); (3) resolution required; (4) schedule limitations; (5) degree of sophistication required for data presentation and interpretation; and (6) specific deliverables required should be clearly defined.

5.5.2 Calibration

For reconnaissance surveys or for surveys where lateral resolution is more important than depth, the traces may be roughly calibrated by estimating the velocity of electromagnetic waves in the media at the site using published values for similar materials. The crudeness of the calibration is evidenced by considering that the velocity may vary by more than an order of magnitude, depending on the soil/rock properties and the moisture content.

For surveys requiring reasonable resolution of target depth, the travel time to targets of known depths must be determined at each site. As the radar trace is made over the known targets, the reflection patterns provide direct depth-calibration points on the trace. Sites with uniform lithology may require only a few depth calibrations, but generally it is necessary to perform these calibrations at several locations and at several depths throughout the area of interest. Each radar trace should be referenced to the calibration most representative of the trace coordinates at the site. The preferred method is to use buried objects of known depth as calibration targets, or to excavate to detected objects and measure their depth below ground surface. A less desirable (but often necessary) procedure is to bury standard targets at various depths within the area of interest.

6.0 DATA FORMAT, PROCESSING, AND INTERPRETATION

6.1 DATA FORMAT

Although much of the data obtained in GPR surveys are automatically recorded by the instrumentation, additional information to unambiguously identify and to interpret each trace should be recorded in the field logbook. At a minimum, the field logbook should contain the following information:

- project name, number and location;
- company or organization;
- date and time of day;
- operator's name;
- line and trace designation (also recorded directly on the signal recording medium);
- equipment serial numbers;
- antenna frequency;
- direction and speed of antenna movement;
- weather and temperature;
- site map coordinates at the beginning and end of the trace;
- other pertinent notes, remarks or comments; and
- electromagnetic velocity in the subsurface medium at the nearest calibration point.

6.2 DATA PROCESSING

Reflected radar signals are electronically processed and displayed as an intensity-modulated time spectrum, where the time corresponds to target depth as described above. The series of signals corresponding to the reflected pulses as the antenna moves along a path forms a three-dimensional data set containing traverse distance, depth, and intensity information.

Typically, data are recorded on magnetic tape and/or displayed on a graphic recorder, with distance displayed along the *x*-axis, time (i.e., depth) displayed along the *y*-axis, and intensity given by the degree of darkness of the trace. In a typical survey, a series of parallel traverses are made with the GPR, and the series of graphical traces provide X-Y-Z locational and intensity of reflection information for targets of interest. Interpretation of anomalies in GPR traces requires

considerable subjective evaluation by a trained geophysicist. Extensive experience is required to distinguish target reflections from inherent system noise and interferences. In many cases, the anomalies caused by the targets of interest are small compared to varying reflections from the antenna system, the ground surface, geologic perturbations, and other interferences. Similarly, an acceptable interpretation of target depth from travel-time data requires knowledge of the varying geophysical characteristics across the site area surveyed.

A radar antenna transmits a "cone," rather than a thin beam of electromagnetic energy, that results in reflections obtained from objects not directly below the antenna. As the antenna moves across the plane of an object, reflections are obtained for a considerable distance along the antenna path. The radar reflections will generate a hyperbolic signature pattern. The size and shape of this hyperbolic signature varies as a function of the wave velocity within the subsurface materials, the size and orientation of the object relative to the radar wave pulse, and the rate, t, at which the antenna configuration is moved along the surveyed line. The signal travel times will vary corresponding to the distance between the antenna and the object.

A discrete spherical target, therefore, will generate a hyperbolic reflection pattern with the apex of the hyperbola corresponding to the location and depth of the object. Multiple or odd-shaped targets or targets of considerable size in comparison to the radar wavelength will generate complex reflection patterns consisting of overlapping hyperbolas. Thus, a true "picture" of subsurface objects is not obtained, and experience is necessary to translate the complex tracings into information concerning target depths, size, or shape.

7.0 RESTRICTIONS AND LIMITATIONS

The GPR has a number of limitations to its use. These are:

- limited depth of penetration, particularly in clay-rich soils;
- antenna ringing and other spurious electromagnetic noise that mask targets;
- limited three-dimensional data display capabilities; and
- limited target identification capabilities.

4.0 REQUIRED EQUIPMENT

4.1 DEFINITION AND EQUIPMENT

Sampling equipment includes split spoons, liners, hand augers, bailers, bowls, knives, scoops, water samplers, nondisposable filtration equipment, or any equipment that directly contacts samples. Equipment necessary to complete decontamination procedures includes:

- 5-gal or larger plastic buckets and/or troughs;
- laboratory-grade detergent (phosphate free);
- stiff-bristle brushes capable of cleaning the inside and outside of equipment;
- Teflon sprayers or wash bottles, or 2- to 5-gal manual pump sprayer (pump sprayer material must be compatible with the solution used);
- plastic sheeting;
- disposable wipes;
- aluminum foil;
- potable water;
- deionized, organic-free water [American Society for Testing and Materials (ASTM) Type II or equivalent] [high-pressure liquid chromatography (HPLC)-produced water is not acceptable] **(Note: the equivalent of ASTM Type II water can be processed on-site by using a mobile deionization/organic filtration system)**;
- pesticide-grade or better methanol or, where required by state or region, isopropanol **(Note: the use of methanol is preferred to isopropanol because of the potential for generation of acetone as a photodegradation product of isopropanol)**;
- gloves, goggles, and other protective clothing as specified in the site-specific Health and Safety Plan; and
- steam cleaner.

5.0 PROCEDURES

5.1 GENERAL PROCEDURE

Before samples are collected, the equipment used to collect water, soil, sediment, and other samples will be decontaminated by the following method.

STANDARD OPERATING PROCEDURE NO.4
FIELD EQUIPMENT DECONTAMINATION

1.0 OBJECTIVE

The objective of this procedure is to describe the proper procedures for decontaminating sampling equipment used to perform field investigations.

2.0 BACKGROUND

Decontamination of field equipment is necessary to ensure that chemical analyses reflect actual concentrations at sampling locations by maintaining the quality of samples and preventing cross-contamination. Further, decontamination reduces the health hazards to field personnel and prevents the spread of contaminants off-site.

3.0 RESPONSIBILITIES

Site Manager: The Site Manager, or Field Team Leader, is responsible for ensuring that field activities are completed to meet the project objectives, are conducted in accordance with the project plans and requirements, and that all activities are performed according to the respective procedures. The Site Manager is responsible for ensuring that all site personnel are trained in the procedures, that the procedures are adhered to, and that all activities are documented.

Field Team: All members of the field team (samplers, technicians, field geologists, engineers, etc.) are responsible for understanding and implementing this field procedure as well as ensuring that all of the team members also perform in accordance with this procedure.

It is the responsibility of all field personnel to identify, document, and submit recommendations to improve the quality, usability, and implementability of this procedure.

1. Set up a decontamination line on plastic sheeting or on a table covered by aluminum foil (shiny side away from equipment). The decontamination area should progress from "dirty" to "clean" and end with an area for drying equipment. At a minimum, clean plastic sheeting must be used to cover the ground, and plastic sheeting or aluminum foil must cover tables or other surfaces where decontaminated equipment is to be placed;
2. Dislodge as much loose dirt as possible from equipment before beginning the decontamination process. Wash the item thoroughly in a bucket or trough of soapy water. Use a stiff-bristle brush to dislodge any clinging dirt. Disassemble any items that might trap contaminants internally before washing;
3. Rinse in second bucket or trough containing tap water. Rinse water should be replaced as necessary (generally when water is cloudy);
4. Repeat step 3 in a separate bucket or trough (optional);
5. Using a hand sprayer, rinse the item with ASTM Type II or equivalent water over a separate bucket;
6. Using a hand sprayer, rinse the item with methanol or isopropanol, whichever is appropriate, over a separate bucket;
7. If the equipment will have time to fully air dry before its next use, allow to air dry. If the equipment will not be allowed to fully air dry, repeat step 5 before reassembling or using any equipment;
8. If equipment will not be used immediately after drying, wrap in aluminum foil (shiny side out) for storage and transport;
9. Record decontamination protocol, equipment types, and date in the appropriate logbook at each occurrence; and
10. After decontamination activities are complete, collect all contaminated waters, solvents, plastic sheeting, aluminum foil, disposable gloves, boots, and clothing. Place contaminated items in properly labeled drums for disposal. Liquids and solids must be drummed separately.

5.2 DOWNHOLE AND HEAVY EQUIPMENT

Downhole equipment consists of nonsampling tools such as hollow-stem augers, drill pipe, bits, casing, and screen. Drill rigs, backhoes, and other heavy machinery are also included. Equipment necessary to complete decontamination procedures includes:

- plastic sheeting;
- metal, wooden, or plastic sawhorses or other stands;
- laboratory-grade detergent (phosphate free);
- steam cleaner;
- stiff-bristle brushes;
- 2- to 5-gal manual pump sprayer (pump sprayer must be compatible with the solution used);
- deionized, organic-free water (ASTM Type II or equivalent) (HPLC-produced water is not acceptable); and
- gloves, goggles, boots, and other protective clothing as specified in the site-specific Work Plan.

Before drilling, sampling, excavating, or leaving the site, all drilling equipment used in field sampling activities must be decontaminated. All downhole augering, drilling, and sampling equipment shall be sandblasted (off-site) if it is new, painted equipment (such as split spoons or auger flights) or exhibits build-up of rust or caked material. Heavy equipment not directly used for sampling will be decontaminated at a designated area designed to contain decontamination wastes and waters. The following steps must be taken when decontaminating this equipment:

1. Set up a decontamination pad that is large enough to fully contain the equipment to be cleaned. If practical, a centralized decontamination area should be established. This area should be set up to contain contaminated rinse waters and may be constructed using one or more layers of heavy plastic sheeting with bermed sides, a lined excavated pit, or a bermed concrete or asphalt pad. The decontamination area must be constructed so that fluids can be easily pumped from the area to holding containers;
2. Set up a "clean" area upwind of the decontamination area to receive cleaned equipment for air drying. At a minimum, clean plastic sheeting must be used to cover surfaces on which decontaminated equipment is to be placed;
3. Don personal protective equipment as specified in the site-specific Health and Safety Plan before beginning cleaning activities;
4. For heavy equipment, spray areas exposed to contaminated soil using steam-spray unit. Be sure to spray down all surfaces, including the undercarriage. It is also good practice to clean the motor, hydraulic lift, oil fill, and fuel tank area to avoid introducing contamination at the work site;

5. For smaller equipment such as augers, place the objects to be cleaned on metal or plastic-covered wooden sawhorses or supports. Using the steam-spray unit, spray the contaminated equipment. Be sure to spray inside corners and gaps especially well using a brush, if necessary, to dislodge dirt;
6. For steps 4 and 5, aim the sprayer downward as much as possible to avoid spraying outside the decontamination area;
7. If the condition of downhole or heavy equipment warrants using hot soapy water in the steam-spray unit, rinse the equipment with clean, clear tap water following the steam spray. If using steam, the rinse is not necessary if the steam does not contain a detergent;
8. Remove the equipment from the decontamination area to the "clean" area to dry;
9. Record decontamination protocol, equipment types, and date in the appropriate logbook; and
10. After decontamination procedures are complete, or any time the decontamination fluids fill the bermed or contained area, collect all decontamination fluids and transfer them to appropriate containers. Place all plastic and personal protective equipment into appropriate containers. All containers must be labeled properly for disposal. Liquids and solids must be stored separately.

5.3 PUMPS AND PUMP ASSEMBLIES

Any pump in which potentially contaminated fluids come into contact with any part of the pump equipment requires decontamination. This requirement does not include peristaltic pumps. Dedicated tubing should be used for peristaltic pumps so decontamination will not be needed. If the tubing is to be reused, it must be properly decontaminated. Equipment necessary to complete decontamination procedures includes:

- ASTM Type II water;
- plastic sheeting;
- sufficient containers, two for decontamination procedure and one for waste water;
- laboratory-grade detergent (phosphate free); and
- gloves, goggles, boots, and other protective clothing as specified in the site-specific Work Plan.

Following the use of a pump for development, purging, and/or sampling, the pump should be decontaminated by the following method.

1. Set up containers in a line on the plastic;
2. Add potable water with detergent to the first container; add potable water alone to the second container. There should be sufficient water to accomplish the decontamination procedure in each container; **(Note: before using pumps, check state and regional guidance on the use of a detergent rinse. Detergent rinse of pumps is not allowed in all areas)**
3. Place one container close enough to the decontamination area to collect the spent decontamination fluids;
4. Place the pump in the first container, and pump enough water through it to equal at least three pump-and-pump-hose volumes. Pump the water into the waste drum. Move the pump to the second container and repeat. Rinse out and fill the second container with ASTM Type II water and repeat again;
5. Record decontamination protocol, equipment types, and date in the appropriate logbook; and
6. After decontamination activities are complete, collect all contaminated water; solvents; plastic sheeting; aluminum foil; and disposable gloves, boots, and clothing. Place contaminated items in properly labeled drums for disposal. Liquids and solids must be drummed separately.

6.0 RESTRICTIONS AND LIMITATIONS

Filtering of samples, when required, should be done in the field as quickly as possible. The sample shall be preserved immediately after filtration. Three basic filter systems are typically used: an in-line disposable filter, an inert gas over-pressure filtration system, and the vacuum filtration system. For systems where disposable filters are used, decontamination is not required. The filters should be discarded after the desired sample is obtained. For reusable systems, decontamination procedures for sampling equipment are found in Section 4.

STANDARD OPERATING PROCEDURE NO. 5
DIRECT PUSH TECHNOLOGY OPERATION

1.0 OBJECTIVE

The objective of this procedure is to define the techniques and requirements for the use and operation of the Direct Push Technology (i.e., Geoprobe®) hydraulically powered percussion/probing machine.

2.0 BACKGROUND

The Direct Push equipment is a vehicle-mounted, hydraulically powered, percussion/probing machine manufactured by Geoprobe Systems, Salina, Kansas. The unit uses direct push and percussion hollow steel rods with various adapters designed to collect soil gas, soil, and/or groundwater samples. These samples are used to characterize the horizontal and vertical extent of soil and/or groundwater contamination. The system can be used under any conditions amenable to hollow-stem-auger drilling. This screening method is a cost-effective alternative to traditional subsurface investigative methods. From 15 to 25 soil gas, soil, or groundwater samples can be collected in a day.

The samples commonly are analyzed using a field gas chromatograph for rapid analytical turnaround time. The traditional investigative approach is to use an auger drill rig and a fixed-base analytical laboratory. By using the system in combination with the appropriate field analytical equipment (gas chromatograph/mass spectrometer, atomic absorption, x-ray fluorescence, immunoassay, etc.), the sampling plan can be periodically adjusted in the field to ensure that the vertical and lateral extent of soil and/or groundwater contamination is determined before demobilization. Rapid analytical results are available from the field laboratory. The traditional approach normally requires several field efforts to fully characterize a site.

The probe sampling requires the temporary installation of hollow steel rods into the unsaturated soil or the saturated water table zone. Static forces are able to push the probe to depths of more than 40 ft in some soils. With the addition of percussion to the static force, probes can be driven to depths in excess of 100 ft. The Direct Push equipment also has the capability to install a permanent stainless steel groundwater sampling point called a microwell.

The advantages of the Direct Push Technology are:

- lower cost;
- ease of mobilization;
- rapid sample collection;
- absence of borehole cuttings, thus minimizing investigation-derived waste;
- ability to collect undisturbed soil and groundwater samples without constructing permanent monitoring wells;
- access to much greater depths than those achieved with hand-driven probing equipment; and
- ability to perform a downhole resistivity geophysical survey.

3.0 RESPONSIBILITIES

Site Manager: The Site Manager, or Field Team Leader, is responsible for ensuring that field activities are completed to meet the project objectives, are conducted in accordance with the project plans and requirements, and that all activities are performed according to the respective procedures. The Site Manager is responsible for ensuring that all site personnel are trained in the procedures, that the procedures are adhered to, and that all activities are documented.

Field Team: All members of the field team (samplers, technicians, field geologists, engineers, etc.) are responsible for understanding and implementing this field procedure as well as ensuring that all of the team members also perform in accordance with this procedure.

It is the responsibility of all field personnel to identify, document, and submit recommendations to improve the quality, usability, and implementability of this procedure.

4.0 REQUIRED EQUIPMENT

4.1 DECONTAMINATION EQUIPMENT

The following decontamination equipment is required:

- plastic buckets and/or troughs;

- laboratory-grade detergent (phosphate free);
- high-pressure hot water cleaner;
- stiff bristle brushes capable of cleaning the inside and outside of equipment;
- Teflon sprayers or wash bottles, or 2- to 5-gal Teflon configuration manual pump sprayer;
- plastic sheeting;
- disposable wipes or rags;
- aluminum foil;
- potable water;
- deionized, organic-free water [American Society for Testing and Materials (ASTM) Type II or equivalent];
- pesticide-grade or better methanol, or pesticide-grade or better isopropanol if required by the state or region **(Note: the use of methanol is preferred to isopropanol because of the potential for generation of acetone as a photodegradation product of isopropanol)**; and
- latex gloves, goggles, and other protective clothing as specified in the site-specific Health and Safety Plan.

4.2 PROBING EQUIPMENT

The following equipment is required:

- heavy-duty, four-wheel-drive pickup or van;
- rear-mounted hydraulic probe driving and removal system;
- rotary impact drill for asphalt/concrete penetration;
- vacuum volume pump system for soil gas sampling and groundwater purging;
- hardened steel sampling probes and accessories; and
- decontamination equipment.

4.3 PERMASCREEN EQUIPMENT

The following equipment is required:

- casing drive seat;
- expendable drive point;

- drive-point O-ring (per Geoprobe specification),
- prepacked screen;
- polyvinyl chloride protective casing;
- service cap;
- stainless steel casing; and
- casing O-ring (per Geoprobe specification).

4.4 SAMPLING EQUIPMENT

The following equipment is required:

- retractable soil gas points for vertical profiling;
- expendable soil gas points for discrete depth-interval sampling;
- 3/16-in. Teflon, polyethylene, or polypropylene tubing and soil gas points;
- appropriate sample containers, ice, cooler, and sample labels;
- glass soil gas bulbs with Teflon stopcocks and replaceable septa, stainless steel canister, or sample syringes;
- Tedlar bags;
- small-diameter Shelby-tube piston samplers for discrete depth soil sampling;
- extruder bracket and dowels for discharging soil;
- slotted well points for shallow groundwater sampling;
- water trap for vacuum pump purging or semivolatile sampling;
- small-diameter inertial foot-valve pumps, minibailers, or tubing bottom check valve for groundwater sample collection;
- granular or powdered bentonite;
- plastic sheeting, garbage bags, caution tape and posts;
- operator's manual;
- Sampling and Analysis Plan and Health and Safety Plan;
- field analytical equipment (gas chromatograph/mass spectrometer, atomic absorption, x-ray fluorescence, and immunoassay);
- large-bore sampler with liners;
- Permascreen; and
- water level indicator.

5.0 PROCEDURES

5.1 MOBILIZATION

Before initiating any field activities, the following items must be completed:

- each location will be checked for accessibility;
- all initial sampling locations will be staked;
- utility clearance will be completed on each location;
- each sampling point will be field located;
- the elevation of each groundwater sampling point will be surveyed;
- location and elevation data will be plotted on a map; and
- all sampling equipment will be decontaminated.

5.2 DECONTAMINATION

All downhole sampling equipment and all equipment directly contacting the samples will be decontaminated before use and between drilling locations.

5.3 SOIL GAS SAMPLING

There are three types of sampling tools that can be used for sampling soil gas: (1) sampling through probe rods using an expendable point, (2) sampling through probe rods using a retractable point, and (3) sampling through inner tubing using the postrun tubing (PRT) system. The PRT system is the preferred sampling method for the following reasons:

- increases speed and accuracy of soil gas sampling;
- eliminates problems associated with rod leakage and sample carryover;
- reduces the probe rod decontamination time;
- uses a simple design for ease of use and vacuum-tight sealing; and
- requires no management of inner tubing during probing.

5.3.1 Postrun Tubing Soil Gas Sampling Procedure

The following section describes the steps that must be followed when sampling soil gas using the PRT method.

5.3.1.1 Preparation

1. Decontaminate all parts before use following the decontamination procedures;
2. Install O-rings on the expendable point holder and the PRT adapter;
3. Check the probe rods for any obstructions and test fit the adapter with the PRT fittings on the expendable point holder; and
4. Connect the adapter to the end of the tubing; secure with Teflon tape, if necessary.

5.3.1.2 Probing

1. Drive the PRT tip configuration into the ground. Connect probe rods as necessary to reach the desired depth; and
2. Disengage the expendable point by pulling the probe rods up about 1 ft when the desired depth is reached. Remove the push cap from the top probe rod.

5.3.1.3 Connection

1. Insert the adapter end of the tubing inside the probe rods;
2. Push the tubing down the probe rods until it reaches the bottom. Leave 2 ft of tubing extending out of the top of the probe rods;
3. Twist the tubing in a **counterclockwise** direction until the adapter threads have threaded into the expendable point holder; and
4. Check the connection by pulling up lightly on the tubing.

5.3.1.4 Sampling

1. Connect the tubing and the in-line glass bulb or stainless steel canister to the vacuum pump system;

2. Purge the tubing and glass soil-gas bulb or stainless steel canister by pumping at least three probe rod and canister volumes before collecting a sample;
3. The gas flow rates will be monitored with a ball-type flow meter attached to the exit port of the vacuum pump;
4. Close the stopcocks in the glass bulb or stainless steel canister;
5. If the soil gas sample is collected with a syringe, puncture a silicon rubber segment in the evacuation line; and
6. If the soil does not yield vapor to the applied vacuum, either pull the probe rod back farther from the tip or apply a greater vacuum pressure.

5.3.1.5 Removal

1. After collecting a sample, pull up firmly on the tubing until it releases from the PRT adapter;
2. Remove the tubing from the probe rods. Dispose of the tubing;
3. Retrieve the probe rods from the ground;
4. Visually inspect the O-ring at the base of the PRT to verify a proper seal was achieved; and
5. Plug the hole as specified in Sect. 5.7 of this procedure.

5.3.1.6 Documentation

The following information will be recorded in the field gas sampling log: date and time, site and sample location, sample crew, probe/sample depth, flow rate, purge, and sample volume.

5.3.2 Vertical Profiling

Vertical profiling consists of collecting soil gas samples from various depths at a single location. The depth of the soil gas sample with the most significant response will indicate the optimum sampling depth. Vertical profiling should be done at some time during the soil gas survey. Knowledge of the subsurface lithology can also assist in determining the optimum depth to collect soil gas samples. (New tubing must be used for each sample.)

5.4 SOIL SAMPLING

The Direct Push Tecnology system has two different types of soil-sampling tools. The first type is the macrocore sampler (similar to a Shelby tube and cannot sample at a discrete depth). The second type of soil sampler is the probe drive soil sampler, which is a closed piston sampler for soil sampling at discrete depths. This type of sampler is designed to remain completely sealed while driven to a predetermined depth. Both types of samplers are pushed or driven and do not generate any cuttings.

5.4.1 Macrocore Sampler (Shelby Tube) Procedure

The macrocore sampler is similar to the Shelby tube and is used to collect continuous soil samples from the ground surface to a depth of 20 ft using the system. The sample tube is 48 in. long, 2.0 in. in diameter, and holds a 46-in. clear plastic PETG liner. The sampler can recover a 45-in.-long by 1.5-in.-diam core. Unlike the probe drive soil samplers, the macrocore sampler does not have a piston tip and cannot collect a discrete sample. The sampler is removed from the boring every 45 in. to remove the sample. If excessive hole sloughing is a problem, the large-bore soil sampler should be used to ensure that a representative sample is collected from a specified depth. The following steps must be followed when sampling soil with the macrocore sampler.

5.4.1.1 Sampling

1. Connect the drive cap to the drive head at the top end of the sampler;
2. Apply down-pressure and activate the hammer as necessary to begin sampling;
3. Add a probe rod and drive the sampler until the drive head reaches the ground surface; Do not proceed more than 48-in; and
4. To take samples at consecutive intervals, lower the sampler down the previously made hole. The sampler should inspect both the hole and sample liner for signs of sloughing.

5.4.1.2 Removal

1. Pull out the probe rods and the sampler with the system; and
2. Unscrew the cutting shoe and pull the liner out.

5.4.2 Probe Drive Soil Sampling Procedures

There are two types of probe drive soil samplers. They are the standard (Kansas sampler) and the large-bore sampler. The following chart lists the sizes available for both the standard and large-bore sampler.

Probe Drive Soil Samplers

Name of sampler	Sample tube dimensions (in.)	Core dimensions (in.)	Core recovery method	Liners	Depth capability (ft)[a]
Standard	10 by 1.125	8.75 by 0.96	Extruded	No	50
Standard	24 by 1.125	21.25 by 0.96	Extruded	No	50
Large bore	24 by 1.375	22 by 1.0625	Pulled out	Yes	30

[a] Depth capability will vary depending on lithology.

Liners are available for the large-bore sampler in PETG, brass, stainless steel, and Teflon. The PETG liners are used if the soil samples are collected for lithology only. For definitive sampling, the stainless steel liners are used. The large-bore sampler will collect 470 g of sample, which is sufficient for a definitive analysis.

The large-bore probe drive sampler is preferred over the standard sampler because it can accommodate liners, it is larger in diameter than the standard sampler and collects a larger soil sample, and the sample does not have to be extruded.

The following steps must be followed when collecting soil samples using either the standard- or the large-bore probe drive soil sampler.

5.4.2.1 Assembly

1. Decontaminate all parts before use following the decontamination procedures;
2. Assemble all of the parts as shown in the operator's manual; and
3. Replace the O-ring on the piston stop-pin each time the sampler is assembled. Make sure the pin is tightened down with a wrench.

5.4.2.2 Probing

1. Attach the assembled sampler onto the leading probe rod;
2. Drive the sampler into the ground and retighten the stop-pin; and
3. Drive the sampler to the top of the desired sampling interval.
   Note: A 12-in.-diam drive rod for initial drilling is often helpful in placing the sampler below the surface.

5.4.2.3 Stop-Pin Removal

1. Remove the drive cap and lower the extension rods down the inside diameter of the probe rods; use couplers to join rods together;
2. Attach the extension rod handle to the top extension rod and rotate the handle clockwise to remove the stop-pin; and
3. Remove the extension rods from the probe rods. The stop-pin should be attached to the last extension rod.

5.4.2.4 Sampling

1. Replace the drive can onto the top probe rod;
2. Mark the length of the sampler used on the top probe rod;
3. Drive the sampler the marked distance. Do not over-drive the sampler;
4. Remove the probe rods from the hole to recover the sampler;
5. Extrude the sample from the sampler. The standard sampler requires a machine extruder; the sampler liner with the sample is pulled out of the large-bore sampler by hand;
6. Place the extruded soil sample in the appropriate sample container. The soil sample in the large-bore sampler can be either extruded or the sample liner section ends can be capped; and

7. Label all samples completely immediately upon sampling.

5.5 GROUNDWATER SAMPLING

There are three types of well point configurations that can be used with the system to collect groundwater samples. All three types of well points are driven into the water table with the system, and a sample of the groundwater is collected through the hollow probe rods. The different well points available are:

- an expendable point (which is disconnected by pulling up on the probe rods to expose the open bore of the probe rod);
- a mill-slotted well point; and
- a screen point sampler.

The expendable point is not recommended because the sand and silt can flow up the probe rod and clog the sampling apparatus. The mill-slotted well point is not recommended in clays. It is driven with the probe rods to the desired depth and sampled (see Subsection 5.5.1.4 of this procedure) and is recommended for unconsolidated sand aquifers. The screen point sampler should be used in all other types of unconsolidated aquifers.

5.5.1 Screen Point Sampler Procedure

The screen point groundwater sampler is a 19-in. screen encased in a perforated stainless steel sleeve. Screens can be custom fabricated up to a length of 48-in. The screen section remains totally enclosed in a sheath until it is pushed out into the formation at the desired depth. Groundwater samples can be bailed from the rod bore or pumped directly from the screen section using flexible tubing, a PRT adapter, and a peristaltic pump. The following steps must be followed when using the screen point sampler.

5.5.1.1 Assembly

1. Decontaminate all parts before use following the decontamination procedures;
2. An uncontaminated screen insert should be used for each new sample; and
3. New O-rings must be installed at each O-ring location before each sample is taken; and

4. Follow the assembly procedures outlined in the operator's manual.

5.5.1.2 Probing

1. Place a drive cap on the assembled sampler and drive into the ground;
2. Continue to drive the sampler with probe rods until the sampler tip has been driven about 1 ft below the target sampling depth; and
3. Disengage the expendable drive point by pulling the rods back a distance of about 2 ft.

5.5.1.3 Exposing Screen

1. The 3/8-in. tubing affixed with a PRT adapter is lowered to the top end of the screen assembly;
2. The threads on the PRT adapter are engaged with the threads on the screen connector by pushing gently downward on the tubing and rotating it **counterclockwise;**
3. In a stable formation, it should be possible to push the screen assembly out into the open borehole by pushing down on the tubing; and
4. If the screen cannot be pushed into the open borehole with the tubing, remove the tubing and push the screen—with the extension rods inserted—down the inside of the probe rods. Care should be taken to prevent damage to the sample and probe rods.

5.5.1.4 Sampling

1. Attach a peristaltic or bladder pump (or a vacuum pump with an in-line trap) to the 3/8-in. tubing and collect a water sample. This method of sampling can be used at depths of 25 ft or less. Do not use a vacuum or peristaltic pump if sampling for volatile organic analytes. A bailer should be used in this case;
2. At depths greater than 25 ft, lower the 3/8-in. tubing equipped with a bottom check valve to the water level. By oscillating the tubing up and down, water will be pushed upward into the tubing. Remove the tubing from the probe rods and collect the sample. The 3/8-in. O.D. by 1/4-in.-I.D. well tubing recovers 9.64 mL/ft. Discard tubing after each sample is collected; and
3. A stainless steel bailer attached to clean nylon line can also be used to collect water samples. The bailer is lowered down the hollow drive rods to the water table.

5.5.1.5 Removal

1. Remove the tubing if the PRT system was used; and
2. Remove the probe rods and sampler.

5.6 PERMASCREEN WELL

A permanent sampling point, known as a Permascreen well, can be installed using the system. The well is installed using an expendable drive point attached to stainless steel casing. The casing is advanced by inserting probe rods inside the casing using the system. When the proper depth has been reached, the probe rods are removed and replaced with a prepacked stainless steel screen (7/8- in. by 24- in.). The rod(s) is then retracted so that water can enter through the screen. The advantages of the Permascreen well are:

- No drill cuttings or other investigation-derived wastes are generated during the installation of a Permascreen well;
- A Permascreen well is less expensive to install than a conventional well;
- The Permascreen well can be developed, purged, and sampled just like a conventional monitoring well; and
- The water produced during development and purging is minimal because of the small diameter (volume) of the Permascreen well.

5.6.1 Permascreen Well Installation and Sampling

The following steps must be followed when installing the Permascreen well.

5.6.1.1 Decontamination

Decontaminate all parts before use following the decontamination procedures in SOP 4.

5.6.1.2 Pilot Hole

A pilot hole is made by probing with a retractable pilot point threaded onto the end of the probe rod. The pilot hole should be pushed to within 2 to 4 ft of the planned total depth of the well.

5.6.1.3 Initial Assembly and Insertion

1. Ensure that an O-ring is in the proper slot on the expendable drive point, and insert the expendable drive point into the drive shoe;
2. Thread the point driver into a section of probe rod, and insert the probe rod (driver end first) into the casing assembly;
3. Thread the drive collar into the casing and the skirted drive cap onto the probe rod; and
4. Insert the casing assembly into the pilot hole. Do not retract the assembly before the sampling depth has been reached.

5.6.1.4 Driving

1. Drive the assembly with the system to the planned total depth; and
2. When adding probe rods and casing joints, make sure the threads are tight and the shoulder of the probe rod threads is even with, or above, the top of the drive collar.

5.6.1.5 Prepacked Screen Installation

1. Remove all probe rods from the inside of the installed casing. Reinstall the casing drive collar;
2. Attach the prepacked screen to a section of extension rod using a screen connector; and
3. Lower the screen/rod assembly down the casing until the screen reaches the bottom of the casing. Leave at least 25-in. of extension rod above the casing.

5.6.1.6 Casing Retraction

1. Remove the casing using the casing puller on the hammer of the system;
2. As the casing rises, press the extension rod handle down so that the prepacked screen remains stationary;
3. After the casing has been pulled up 24-in., rotate the handle of the extension rod **clockwise** at least six turns. Remove the extension rods from the casing; and.
4. Install a service cap on the top of the casing and install a protective casing with a locking cap and lock to prevent tampering.

5.6.1.7 Sampling

The well can be developed, purged, and sampled by using a peristaltic bladder, tubing with bottom check valve, or a bailer.

5.7 PLUGGING AND ABANDONMENT

All probed holes, whether soil gas, soil, or groundwater test holes, must be plugged and abandoned. Holes should be filled with a bentonite slurry, granular bentonite, or 3 percent bentonite cement from total depth to the surface. The plugging material can be poured into shallow holes less than 5 ft in depth. Deeper holes will require tremie placement of the plugging material. When plugging a Permascreen well, remove the screen with the extension rods and pour the plugging mixture into the casing as it is being removed.

5.8 QUALITY CONTROL

Any departure from the specified SOPs will be justified and authorized before deviating from the requirements. Deviations shall be sufficiently documented to allow repetition of the activity as actually performed.

6.0 RESTRICTIONS/LIMITATIONS

The following restrictions/limitations apply to these procedures:

- Soil gas results are a secondary indicator of other media (soil and water) contamination. The results are semiquantitative. Soil gas release is affected by many variables including soil mineralogy, temperature, barometric pressure, precipitation, and fluctuating water table;
- Actual soil and/or groundwater samples are preferred over soil gas samples; and
- The system is limited to sampling depths up to approximately 100 ft in unconsolidated, sandy soils and to shallower depths in compacted clayey or gravelly soils and tills.

7.0 REFERENCES

1. T. M. Christy and S. C. Spradlin, *The Use of Small Diameter Probing Equipment for Contaminated Site Investigation*, Geoprobe Systems Brochure, 1993.
2 Geoprobe Systems, *1993-94 Equipment and Tools Catalog*, 1993.
3. J. C. Tuttle and G. H. Chapman, *Site Characterization Alternative: Hydraulic Probe Sampling and Mobile Laboratory Analysis*, HMC Superfund '92, HMCRI's 13th Annual Conference and Exhibition, 1992.
4. *Quality Control Requirements For Field Methods*, DOE/HWP-69, Hazardous Waste Remedial Actions Program, Martin Marietta Energy Systems, Inc., Oak Ridge, Tennessee, February 1989.
5. *Standard Operating Procedures for Site Characterizations*, DOE/HWP-100, Hazardous Waste Remedial Actions Program, Martin Marietta Energy Systems, Inc., Oak Ridge, Tennessee, July 1990.

STANDARD OPERATING PROCEDURE NO. 6
WELL DEVELOPMENT

1.0 OBJECTIVE

The objective of this procedure is to define the procedural requirements for developing monitoring wells. The quality control requirements for well development start on p. VI-1 of DOE/HWP-69/R2.

2.0 BACKGROUND

Monitoring wells are developed to create an effective filter pack around the well screen, to repair damage to the formation caused by drilling, to remove the "skin" from the borehole, and to remove fine-grained particles from the filter pack and the adjacent formation. When a cement-bentonite grout is used to seal the annular space, wells should not be developed for a minimum of 24 hr after completion. However, wells may be developed before grouting if conditions warrant.

There are many well development methods currently in use. Acceptable development methods for monitoring wells include:

- pumping,
- overpumping,
- surging and pumping,
- bailing,
- mechanical surging using a surge block, and
- backwashing.

The selection of the monitoring well development method to use at each site should be made based on site conditions and should follow the guidelines specified in the approved site-specific Work Plan.

Several indicator parameters of the produced water should be monitored to assist in the proper development of monitoring wells. The indicator parameters monitored should include pH

(accurate to ±.2 pH units), specific conductance (accurate to ±10%), water temperature (accurate to ±1°C), and turbidity [accurate to ±2 nephelometric turbidity units (NTUs)].

3.0 RESPONSIBILITIES

Site Manager: The Site Manager, or Field Team Leader, is responsible for ensuring that field activities are completed to meet the project objectives, are conducted in accordance with the project plans and requirements, and that all activities are performed according to the respective procedures. The Site Manager is responsible for ensuring that all site personnel are trained in the procedures, that the procedures are adhered to, and that all activities are documented.

Field Team: All members of the field team (samplers, technicians, field geologists, engineers, etc.) are responsible for understanding and implementing this field procedure as well as ensuring that all of the team members also perform in accordance with this procedure.

It is the responsibility of all field personnel to identify, document, and submit recommendations to improve the quality, usability, and implementability of this procedure.

4.0 REQUIRED EQUIPMENT

The following equipment is needed to develop a monitoring well using an approved development method:

- bailer, surge block, pump, controller, pump tubing, bailer, wire line, monofilament rope, and Teflon-coated stainless steel leader;
- power source (e.g., generator), if required;
- water level meter or weighted surveyor's tape;
- temperature, specific conductance, pH, and turbidity meters;
- personal protective equipment (PPE) as specified in the site-specific Health and Safety Plan;
- decontamination supplies, if required on-site; and
- disposal drums to contain produced water, if required.

5.0 PROCEDURES

5.1 WELL DEVELOPMENT

The following steps shall be followed when developing wells:

1. Don PPE as specified in the site-specific Health and Safety Plan;
2. Calibrate all meters in accordance with standard operating procedures and manufacturer's guidelines;
3. Open, check, and note the condition of the wellhead, including the condition of the surveyed reference mark;
4. Using decontaminated equipment, determine the depth-to-static-water level and depth to the bottom of the well (from the surveyed reference mark). Record on the appropriate field forms and in the field logbook;
5. Decontaminate and prepare the necessary equipment for developing the well and start well development;
6. For screened intervals longer than 5 ft, develop the well in 2- to 3-ft intervals from bottom to top. This will ensure proper packing compaction in the filter pack; **(Note: It is good practice to develop all screened and filter packed wells in stages)**
7. Continue well development until produced water is clear, free of suspended solids, and monitored indicator parameters have stabilized and are within the following ranges: pH ± 0.2; specific conductance $\pm 10\%$; temperature $\pm 1°C$; and turbidity 5 NTUs or lower, ± 2 NTUs. Record pertinent data in the field logbook and on the well development forms. In some cases the pH, temperature, and specific conductivity stabilize but the water remains turbid (above 5 NTU). If proper well completion and development measures have been employed and the turbidity is an artifact of the geologic materials in which the well is screened, then the use of turbidity measurements as an indicator parameter can be discontinued. Consultation with the field hydrogeologist is required regarding when to discontinue using turbidity measurements as an indicator parameter; and
8. Remove the development equipment from the well, decontaminate (as required), and clean up the site. Lock the well cover before leaving. Dispose of produced water as required by the project Work Plan.

5.2. WELL VOLUME CALCULATION

The well's volume must be calculated to estimate how many drums or other containers may be required and how many well volumes were removed.

$$7.4805 \times \left(\frac{D^2\pi}{4} \right) \times dH = \textit{volume (in gallons)}$$

where:

D = casing diameter in feet;

dH = the distance from well bottom to static water level in feet; and

$\pi = 3.1416$.

Note these data and calculations in the field logbook.

6.0 RESTRICTIONS/LIMITATIONS

Where flammable, light, nonaqueous phase liquid (LNAPL) or emulsified LNAPL is expected or known to exist on or in groundwater, use only intrinsically safe electrical devices and place portable power sources (e.g., generators) 50 ft (or more) from the wellhead and disposal drums.

Where flammable LNAPL (or emulsified LNAPL) is expected or known, monitoring well development should not start until all LNAPL is removed from the well.

7.0 REFERENCES

1. F. G. Driscoll, *Groundwater and Wells*, second edition, St. Paul, Minnesota, Johnson Division, 1986.
2. U.S. Environmental Protection Agency, *A Compendium of Superfund Field Operations Methods*, EPA/540/P-87/001, 1987.
3. U.S. Environmental Protection Agency, *Manual of Water Well Construction Practices*, EPA/570/9-75-001, 1975.
4. U.S. Environmental Protection Agency, *RCRA Ground-Water Monitoring: Draft Technical Guidance*, November 1992.

STANDARD OPERATING PROCEDURE No. 7
DATA MANAGEMENT SYSTEM

1.0 OBJECTIVE

The objective of these procedures is to establish standardized protocols for the management of analytical and physical data during the Remedial Investigation (RI) at the 142nd Fighter Group, Oregon Air National Guard, Portland International Airport, Portland, Oregon.

2.0 SCOPE

Data management encompasses the receipt of analytical and physical data generated during remedial investigation activities, production and maintenance of an electronic database, and manipulation of this database for characterization of site conditions. Several software programs will be used to accomplish these tasks. Where possible, the data from one system will be imported to another to limit duplicate manual entries and minimize repetitive data checks.

A program called "Real-Time Interpretation System" (R-TIS) was developed for analysis of site conditions during the Remedial Investigation. This version of R-TIS was developed specifically for HAZWRAP and the Air National Guard. The system was designed based on conceptual models of site conditions to provide expeditious interpretation of field data as investigative activities progress.

R-TIS utilizes Microsoft™ database, spreadsheet, drawing, and word processing products under a Windows environment to run queries, generate tables and maps, and write reports. The use of R-TIS is detailed in the User Reference Manual. This manual should be used in conjunction with the procedures outlined in this SOP. A Technical Reference Manual documents system set up.

3.0 REQUIRED EQUIPMENT

The following equipment is required to implement the data mangement system:

- 486 PC with a minimum 8 MB RAM, 546K of continuous lower RAM, and sufficient disk space for requisite software, word processing, and graphics production or a 386 or 486

portable PC or laptop computer with a minimum 4 MB RAM and 150 MB hard disk capacity;

- Hewlett-Packard LaserJet Series III or IV printer with a minimum 3 MB RAM;
- Modems and associated communications software, or equivalent; and
- Fax machines

The following software and operating systems are also required:

- Microsoft® Windows and MS-DOS ver. 3.1 or higher;
- R-TIS;
- Microsoft® Access, Word, and Excel;
- An environmental data management system such as GIS\Key™, and associated software (Microsoft® FoxPro, AutoCAD®, and Quicksurf);
- A laboratory data management program such as Data Manager 2000;
- Geotechnical Graphics System (GTGS);
- Colorado® Backup and associated backup tapes (each 250 MB), or equivalent;
- PKZIP®; and
- Any text editor.

4.0 RESPONSIBILITIES

The Project Manager will serve as the Principle Point of Contact with HAZWRAP and the Base. The PM will direct the project team, including field operations, and coordinated all subcontractor and subtiers support. The PM will also be responsible to for the execution of data management and the site characterization process.

The Field Team Leader will directly supervise all field operations. Responsibilities will include planning, conducting, and overseeing all field personnel and transferring physical data to the Data Manager.

The Data Management Assistant (DMA) will be responsible for manual entry of physical data into R-TIS. The DMA will also be responsible for downloading raw analytical data from field laboratory instruments to the Data Manager 2000 for preliminary evaluation and file formatting.

The Data Management and Analytical Data Evaluation Manager (DEM) will be responsible for evaluation of analytical data and to ensure that a high quality is collected. Responsibilities will also include ensuring that proper data tracking and management are implemented to achieve a high level of project data accuracy. The DEM will prepare technical memorandums for real-time analysis of site conditions, report reproduction, and system seciurtiy.

5.0 PROCEDURE

Physical data will be collected and recorded on field forms by the Field Team Leader. This data will include survey coordinates, well construction details, sample tracking information, and sample location data. Following his/her review of the data, the Field Team Leader will process copies of the field forms to the Data Management Assistant for manual enter into R-TIS.

Samples obtained for chemical analysis will be collected in containers that are prelabelled with bar codes. The bar codes can be scanned in the laboratory to enable electronic tracking of samples from collection through chemical analysis.

Volatile and semi-volatile organic data generated by the field laboratory will be downloaded from the instruments to an ASCII file and uploaded into Data Manager 2000 for preliminary evaluation and file formatting. Inorganic files will be edited for extraneous information, such as duplicate injection results and instrument calibration data, using a text editor before uploading to Data Manager 2000. Selected analytical data, including sample ID, test results, detection limits, and sample collection dates, will then be downloaded to an ASCII file and the file will be submitted to the DEM. The DEM will track receipt of the analytical data and confirm transfer with the DMA.

Analytical data generated by a fixed-base laboratory, if used, will be formatted in Microsoft® Excel according to pre-assigned specifications and electronically transmitted to the DMA within seven days of receipt of samples.

The DMA will import the field analytical data into R-TIS, check the accuracy of physical data entry, and transmit to the Field Team Leader and the PM the following information within eight hours of receipt of the data:

- A summary table of contaminant hits relative to action levels or background data;

- Any figures illustrating contaminant locations, as necessary; and
- Recommendations regarding necessity of secondary samples and placement thereof.

A complete report of analytical data will be mailed to the field office daily or on an as-needed basis via overnight courier. Technical memorandums summarizing site conditions will be transmitted to HAZWRAP weekly or at the completion of field activities at individual sites.

Field and laboratory data will be evaluated following completion of the field effort. Any changes to the field analytical data will be performed by the DEM. Evalution of fixed-base laboratory data will be performed on copies of the electronic files received from the laboratory.

All evaluated analytical and physical data will be imported to GIS\Key™ for final interpretation and preparation of applicable deliverables including, as necessary:

- Groundwater flow nets;
- Chemical isopleth plans and cross sections;
- Chemical concentration graphs;
- Summary tables of contaminant concentrations which exceed action levels or site background values; and
- Comprehensive analytical data reports.

Boring logs will be constructed using GIS\Key™ or GTGS software. The data will be entered manually with the exception of survey data which can be uploaded to GIS\Key™ from R-TIS.

6.0 VALIDATION AND VERIFICATION

Validation and verification (V&V) of the data management system will be implemented to ensure data integrity and security. Procedures for V&V will include the following:

- The data management system will be tested to ensure that all forms and procedures operate according to specifications and that all data are properly updated or retained based on specified requirements. Post development and user-testing of the system will be conducted prior to start-up of the field effort. Final testing will be conducted at the site using method detection limit

study data generated from the laboratory instruments. The data transfer system will be tested before initiation of actual field activities to ensure system performance;

- Analytical data will be password-protected. Data interpretation screens will access read-only files;

- The analytical data transmitted to R-TIS will be copied to a floppy or removable hard disk drive as a backup in the unlikely event of a system failure; and

- R-TIS will be backed-up nightly to a minimum 250 MB tape backup unit using Colorado® Backup software. This operation will be performed automatically. The backup tape will be removed at the end of the work day and taken home by the Technical Lead. When that tape is removed, another tape will be installed. There will be one tape for each workday. The most current tape will always reside outside the office. GIS\Key™ files will be backed up to 3.5 in disks as needed using PKZIP®.

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STANDARD OPERATING PROCEDURE NO. 8
SOIL GAS SAMPLING AND MEASUREMENT OF OXYGEN AND CARBON DIOXIDE

1.0 OBJECTIVE

The objective of this procedure is to supply the procedures needed to conduct soil gas sampling for oxygen (O_2) and carbon dioxide (CO_2). The concentration of O_2 and CO_2 in soils gas will be measured using a Bacharach LEL-02-PPM or equivalent meter for O_2 measurements and a Riken RI-411 or equivalent meter for CO_2 measurements.

2.0 BACKGROUND

O_2 concentrations in soil gas may be used as an indication of the ability of the natural environment to sustain aerobic biodegration and the level of CO_2 may indicate natural degration of aerobically biodegradable compounds occurring at the site.

3.0 RESPONSIBILITIES

Site Manager: The Site Manager, or Field Team Leader, is responsible for ensuring that field activities are completed to meet the project objectives, are conducted in accordance with the project plans and requirements, and that all activities are performed according to the respective procedures. The Site Manager is responsible for ensuring that all site personnel are trained in the procedures, that the procedures, that the procedures are adhered to and that all activities are documented.

Field Team: All members of the field team (samplers, technicians, field geologists, engineers, etc) are responsible for understanding and implementing this field procedure as well as ensuring that all of the team members also perform in accordance with this procedure).

It is the responsibility of all field personnel to identify, document, and submit recommendations to improve the quality, usability, and implementability of this procedure.

4.0 REQUIRED EQUIPMENT

The following equipment is required to measure O_2 levels in soil gas.

GasTech Model 1314 O_2-LEL Monitor (or equivalent) with O_2 probe
rechargeable Ni-cad batteries with charger
hydrophobic filter
Tygon tubing
flow regulator

1L Tedlar bags
certified O_2 gas standards (0% O_2 and 25% O_2).

The following equipment is required to measure CO_2 levels in soil gas.

Riken I-411A CO_2 Analyzer (or equivalent) with CO_2 probe
"D" size batteries
Tygon tubing
flow regulator
1L Tedlar bags
certified gas standards (0 ppm CO_2 and 2000 ppm CO_2)

5.0 CALIBRATION

The instruments will be turned on and equilibrated for at least 30 minutes before conducting calibration. The sampling pump of the instrument will be checked to ensure that it is functioning. Low flow of the sampling pump may indicate that the battery level is low or that some fines are trapped in the pump or tubing. Any flow or instrument power supply problems will be corrected following manufacturer's instructions before calibration is conducted.

Meters will be calibrated each day prior to use against purchased CO_2 and O_2 calibration standards. The standards have been selected to bracket the expected concentration range of the soil gas to be samples. Calibration will be conducted using the following procedure:

> Fill a evacuated Tedlar bags with CO_2 calibration gases. Close the valve on each Tedlar bag. Connect the inlet nozzle of the CO_2 instrument probe to the highest concentration standard. Calibrate the instrument following manufacturers instructions. Remove the Tedlar bag containing the highest concentration of CO_2 from the instrument probe. Connect the zero air and calibrate following manufactures instructions.

Repeat the process for the O_2 meter using O_2 calibration gas standards.

6.0 SAMPLE COLLECTION

Soil gas sampling will be collected using small diameter (approximately 5/8-inch outer diameter) stainless steel probes (KVA Associates or equivalent) with a slotted well point assembly. Probes will be hand driven at the locations specified by the Field Team Leader. The maximum depth for hand-driven probes will typically be 10-15 ft, depending on soil texture. In some dense slits or clays, penetration of the soil gas probe will be less, while in some unconsolidated sands, deeper penetration of the soil gas probe may be possible. Prior to sampling the soil gas probes will be

purged with a sample pump.

7.0 SAMPLE MEASUREMENT

A calibrated CO_2 or O_2 meter will be connected into the sampling train and the soil gas concentration will be monitored until the concentrations stabilize. The stable concentration will be recorded. Stabilization may not be possible if shallow soil gas samples are collected as atmospheric air may be drawn into the probe and produce false readings When shallow soil gas samples re collected, air withdraw will be kept to a minimum.

8.0 DATA REPORTING

All calibration and measurement results will be reported on a standardized form (Attachment). All field team members conducting field soil gas measurements will be required to complete and sign the attached form for every measurement taken.

Data Reporting Sheet, Soil Gas Measurement
142 nd Fighter Group, Oregon Air National Guard
Portland, Oregon

Calibration O_2 (Bacarach LEL -02-PPM Indicator)

Power supply acceptable (check one) Yes ____ No ____

Flow to meter acceptable (check one)Yes ____ No ____

Date Calibrated:_____

Time Calibrated:_____

Calibration performed by: _____

Standard Gas identification:

0% O_2 standard: _____

25 % O_2 standard: _____

Calibration acceptable (check one) Yes ____ No ____

Maintenance Comments:_____

_____

_____

_____

CALIBRATION- CO_2 (Riken RI-411 Analyzer)

Power supply acceptable (check one) Yes ____ No ____

Flow to meter acceptable (check one)Yes ____ No ____

Date Calibrated:_____

Time Calibrated:_____

Calibration performed by: _____

Standard Gas identification:

0% O_2 standard: _____

25 % O_2 standard: _____

Calibration acceptable (check one) Yes ____ No ____

Maintenance Comments:_____

_____

_____

_____

CALIBRATION -CO_2 (RikenI-411A CO2 Analyzer)

Power supply acceptable (check one) Yes ____ No ____

Flow to meter acceptable (check one)Yes ____ No ____

Date Calibrated:_____

Time Calibrated:_____

Calibration performed by: _____

Standard Gas identification:

0 ppm CO_2 standard: _____

2000 ppm CO_2 standard: _____

Calibration acceptable (check one) Yes ____ No ____

Maintenance Comments:_____

_____

_____

_____

SAMPLE INFORMATION

Site: _____

Sample Location: _____

Sample Identification: _____

Sample Depth: _____

Date of measurement: _____

Measurement performed by: _____

CO_2 concentration: _____

O_2 concentration: _____

SAMPLE INFORMATION

Site: _____

Sample Location: _____

Sample Identification: _____

Sample Depth: _____

Date of measurement: _____

Measurement performed by: _____

CO_2 concentration: _____

O_2 concentration: _____

SAMPLE INFORMATION

Site: _____

Sample Location: _____

Sample Identification: _____

Sample Depth: _____

Date of measurement: _____

Measurement performed by: _____

CO_2 concentration: _____

O_2 concentration: _____

SAMPLE INFORMATION

Site: _____

Sample Location: _____

Sample Identification: _____

Sample Depth: _____

Date of measurement: _____

Measurement performed by: _____

CO_2 concentration: _____

O_2 concentration: _____

APPENDIX D
MATERIAL SAFETY DATA SHEETS

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MSDS for BENZENE

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1 - PRODUCT IDENTIFICATION

PRODUCT NAME: BENZENE
FORMULA: C6H6
FORMULA WT: 78.10
CAS NO.: 71-43-2
NIOSH/RTECS NO.: CY1400000
COMMON SYNONYMS: BENZOL; PHENYL HYDRIDE; COAL NAPHTHA
PRODUCT CODES: 9156,9256,9153,9154,9155,B717,9149
EFFECTIVE: 01/22/87
REVISION #04

PRECAUTIONARY LABELLING
BAKER SAF-T-DATA(TM) SYSTEM

HEALTH - 4 EXTREME (CANCER CAUSING)
FLAMMABILITY - 3 SEVERE (FLAMMABLE)
REACTIVITY - 0 NONE
CONTACT - 1 SLIGHT

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

PRECAUTIONARY LABEL STATEMENTS

POISON DANGER
EXTREMELY FLAMMABLE
CAUTION: CONTAINS BENZENE, CANCER HAZARD
HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN
EXCEPTIONAL HEALTH HAZARD - READ MATERIAL SAFETY DATA SHEET

KEEP AWAY FROM HEAT, SPARKS, FLAME. AVOID CONTACT WITH EYES, SKIN, CLOTHING.
AVOID BREATHING VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH

ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. IN CASE OF FIRE, USE ALCOHOL FOAM, DRY CHEMICAL, CARBON DIOXIDE - WATER MAY BE INEFFECTIVE. FLUSH SPILL AREA WITH WATER SPRAY.

SAF-T-DATA(TM) STORAGE COLOR CODE: RED STRIPE (STORE SEPARATELY)

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2 - HAZARDOUS COMPONENTS

COMPONENT	%	CAS NO.
BENZENE	90-100	71-43-2

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3 - PHYSICAL DATA

BOILING POINT: 80 C (176 F) VAPOR PRESSURE(MM HG): 74.6

MELTING POINT: 6 C (43 F) VAPOR DENSITY(AIR=1): 2.77

SPECIFIC GRAVITY: 0.88 (H2O=1) EVAPORATION RATE: N/A (BUTYL ACETATE=1)

SOLUBILITY(H2O): NEGLIGIBLE (LESS THAN 0.1 %) % VOLATILES BY VOLUME: 100

APPEARANCE & ODOR: CLEAR COLORLESS LIQUID HAVING CHARACTERISTIC AROMATIC ODOR.

---

4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP: -11 C (12 F) NFPA 704M RATING: 2-3-0

FLAMMABLE LIMITS: UPPER - 8.0 % LOWER - 1.3 %

FIRE EXTINGUISHING MEDIA
USE ALCOHOL FOAM, DRY CHEMICAL OR CARBON DIOXIDE.
(WATER MAY BE INEFFECTIVE.)

SPECIAL FIRE-FIGHTING PROCEDURES

FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE & EXPLOSION HAZARDS
VAPORS MAY FLOW ALONG SURFACES TO DISTANT IGNITION SOURCES AND FLASH BACK.
CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. CONTACT WITH STRONG
OXIDIZERS MAY CAUSE FIRE.

TOXIC GASES PRODUCED
CARBON MONOXIDE, CARBON DIOXIDE

---

5 - HEALTH HAZARD DATA

THIS SUBSTANCE IS LISTED AS ACGIH SUSPECT HUMAN CARCINOGEN, NTP HUMAN CARCINOGEN, IARC HUMAN CARCINOGEN (GROUP 1). ACCEPTABLE MAXIMUM PEAK ABOVE THE ACCEPTANCE CEILING CONCENTRATION FOR AN EIGHT-HOUR SHIFT = 50 PPM FOR 10 MINUTES; (PEL) CEILING = 25 PPM.

THRESHOLD LIMIT VALUE (TLV/TWA): 30 MG/M3 (10 PPM)

SHORT-TERM EXPOSURE LIMIT (STEL): 75 MG/M3 (25 PPM)

PERMISSIBLE EXPOSURE LIMIT (PEL): 30 MG/M3 (10 PPM)

TOXICITY: LD50 (ORAL-RAT)(MG/KG) - 4894
LD50 (ORAL-MOUSE)(MG/KG) - 4700
LD50 (IPR-RAT)(MG/KG) - 2.9
LC50 (INHL-MOUSE-7H) (PPM) - 9980

CARCINOGENICITY: NTP: YES IARC: YES Z LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE
INHALATION MAY CAUSE HEADACHE, NAUSEA, VOMITING, DIZZINESS, NARCOSIS,
SUFFOCATION, LOWER BLOOD PRESSURE, CENTRAL NERVOUS SYSTEM DEPRESSION.
INHALATION OF VAPORS MAY CAUSE SEVERE IRRITATION OR BURNS OF THE RESPIRATORY SYSTEM, PULMONARY EDEMA, OR LUNG INFLAMMATION. LIQUID MAY BE IRRITATING TO SKIN AND EYES. PROLONGED SKIN CONTACT

MAY RESULT IN DERMATITIS. EYE CONTACT MAY RESULT IN TEMPORARY CORNEAL DAMAGE. INGESTION MAY CAUSE NAUSEA, VOMITING, HEADACHES, DIZZINESS, GASTRO-INTESTINAL IRRITATION, BLURRED VISION, LOWERING OF BLOOD PRESSURE. IRREVERSIBLE INJURY TO BLOOD FORMING TISSUE MAY RESULT FROM CHRONIC LOW LEVEL EXPOSURE.

TARGET ORGANS
BLOOD, CENTRAL NERVOUS SYSTEM, EYES, SKIN, BONE MARROW, RESPIRATORY SYSTEM

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
NONE IDENTIFIED

ROUTES OF ENTRY
INGESTION, INHALATION, EYE CONTACT, SKIN CONTACT, ABSORPTION

EMERGENCY AND FIRST AID PROCEDURES
CALL A PHYSICIAN.
IF SWALLOWED, DO NOT INDUCE VOMITING.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR
AT LEAST 15 MINUTES.

---

6 - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, FLAME, OTHER SOURCES OF IGNITION

INCOMPATIBLES: STRONG OXIDIZING AGENTS, SULFURIC ACID, NITRIC ACID

DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE

7 - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE:

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. SHUT OFF IGNITION SOURCES; NO FLARES, SMOKING OR FLAMES IN AREA. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH AREA WITH WATER.

J. T. BAKER SOLUSORB(R) SOLVENT ADSORBENT IS RECOMMENDED FOR SPILLS OF THIS PRODUCT.

DISPOSAL PROCEDURE — DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER: U019 (TOXIC WASTE)

8 - PROTECTIVE EQUIPMENT

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS ABOVE 10 PPM, A SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, POLYVINYL ALCOHOL GLOVES ARE RECOMMENDED.

9 - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA(TM) STORAGE COLOR CODE: RED STRIPE (STORE SEPARATELY)

SPECIAL PRECAUTIONS

BOND AND GROUND CONTAINERS WHEN TRANSFERRING LIQUID. KEEP CONTAINER TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED, FLAMMABLE LIQUID STORAGE AREA.

---

10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME	BENZENE (BENZOL)
HAZARD CLASS	FLAMMABLE LIQUID
UN/NA	UN1114
LABELS	FLAMMABLE LIQUID
REPORTABLE QUANTITY	1000 LBS.

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME	BENZENE
HAZARD CLASS	3.2
UN/NA	UN1114
LABELS	FLAMMABLE LIQUID

MSDS for TOLUENE

---

1 - PRODUCT IDENTIFICATION

PRODUCT NAME: TOLUENE
FORMULA: C6H5CH3
FORMULA WT: 92.14
CAS NO.: 108-88-3
NIOSH/RTECS NO.: XS5250000
COMMON SYNONYMS: METHYLBENZENE; PHENYLMETHANE; TOLUOL
PRODUCT CODES: 9472,9456,9466,9462,V963,9351,9460,9457,9459,9336,5375,9461
EFFECTIVE: 09/08/86
REVISION #02

PRECAUTIONARY LABELLING
BAKER SAF-T-DATA(TM) SYSTEM

HEALTH - 2 MODERATE
FLAMMABILITY - 3 SEVERE (FLAMMABLE)
REACTIVITY - 0 NONE
CONTACT - 1 SLIGHT

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

SAFETY GLASSES; LAB COAT; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

PRECAUTIONARY LABEL STATEMENTS

WARNING
FLAMMABLE
CAUSES IRRITATION
MAY BE FATAL IF SWALLOWED OR INHALED

KEEP AWAY FROM HEAT, SPARKS, FLAME. AVOID CONTACT WITH EYES, SKIN, CLOTHING.
AVOID BREATHING VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH

ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. IN CASE OF FIRE,
USE ALCOHOL FOAM, DRY CHEMICAL, CARBON DIOXIDE - WATER MAY BE INEFFECTIVE.

FLUSH SPILL AREA WITH WATER SPRAY.

SAF-T-DATA(TM) STORAGE COLOR CODE: RED (FLAMMABLE)

---

2 - HAZARDOUS COMPONENTS

COMPONENT	%	CAS NO.
TOLUENE	90-100	108-88-3

---

3 - PHYSICAL DATA

BOILING POINT: 111 C (232 F) VAPOR PRESSURE(MM HG): 22

MELTING POINT: -95 C (-139 F) VAPOR DENSITY(AIR=1): 3.2

SPECIFIC GRAVITY: 0.87 (H2O=1) EVAPORATION RATE: 2.24 (BUTYL ACETATE=1)

SOLUBILITY(H2O): NEGLIGIBLE (LESS THAN 0.1 %) % VOLATILES BY VOLUME: 100

APPEARANCE & ODOR: CLEAR, COLORLESS LIQUID WITH BENZENE-LIKE ODOR.

---

4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP 4 C (40 F) NFPA 704M RATING: 2-3-0

FLAMMABLE LIMITS: UPPER - 7.1 % LOWER - 1.2 %

FIRE EXTINGUISHING MEDIA
USE ALCOHOL FOAM, DRY CHEMICAL OR CARBON DIOXIDE.
(WATER MAY BE INEFFECTIVE.)

SPECIAL FIRE-FIGHTING PROCEDURES:
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE

OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE & EXPLOSION HAZARDS

VAPORS MAY FLOW ALONG SURFACES TO DISTANT IGNITION SOURCES AND FLASH BACK. CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. CONTACT WITH STRONG OXIDIZERS MAY CAUSE FIRE.

TOXIC GASES PRODUCED

CARBON MONOXIDE, CARBON DIOXIDE

---

5 - HEALTH HAZARD DATA

ACCEPTABLE MAXIMUM PEAK ABOVE THE ACCEPTANCE CEILING CONCENTRATION FOR AN EIGHT-HOUR SHIFT = 500 PPM FOR 10 MINUTES. (PEL) CEILING = 300 PPM.

THRESHOLD LIMIT VALUE (TLV/TWA): 375 MG/M3 (100 PPM)

SHORT-TERM EXPOSURE LIMIT (STEL): 560 MG/M3 (150 PPM)

PERMISSIBLE EXPOSURE LIMIT (PEL): MG/M3 (200 PPM)

TOXICITY: LD50 (ORAL-RAT)(MG/KG) - 5000
LD50 (IPR-MOUSE)(MG/KG) - 1.12
LD50 (SKN-RABBIT) (G/KG) - 14
LC50 (INHL-MOUSE-8H) (PPM) - 5320

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE

INHALATION AND INGESTION ARE HARMFUL AND MAY BE FATAL. INHALATION MAY CAUSE HEADACHE, NAUSEA, VOMITING, DIZZINESS, NARCOSIS, SUFFOCATION, LOWER BLOOD PRESSURE, CENTRAL NERVOUS SYSTEM DEPRESSION. INHALATION OF VAPORS MAY CAUSE COUGHING, CHEST PAINS, DIFFICULTY BREATHING, OR UNCONSCIOUSNESS.

LIQUID MAY BE IRRITATING TO SKIN AND EYES. PROLONGED SKIN CONTACT MAY RESULT IN DERMATITIS. EYE CONTACT MAY RESULT IN TEMPORARY CORNEAL DAMAGE.

SHUT OFF IGNITION SOURCES; NO FLARES, SMOKING OR FLAMES IN AREA. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH AREA WITH WATER.

J. T. BAKER SOLUSORB(R) SOLVENT ADSORBENT IS RECOMMENDED FOR SPILLS OF THIS PRODUCT.

DISPOSAL PROCEDURE

DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER: U220 (TOXIC WASTE)

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8 - PROTECTIVE EQUIPMENT

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO 1000 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE IS RECOMMENDED. ABOVE THIS LEVEL, A SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, POLYVINYL ALCOHOL GLOVES ARE RECOMMENDED.

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9 - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA(TM) STORAGE COLOR CODE: RED (FLAMMABLE)

SPECIAL PRECAUTIONS

BOND AND GROUND CONTAINERS WHEN TRANSFERRING LIQUID. KEEP CONTAINER TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED, FLAMMABLE LIQUID STORAGE AREA.

INGESTION MAY CAUSE HEADACHE, NAUSEA, VOMITING, GASTROINTESTINAL IRRITATION, UNCONSCIOUSNESS, CONVULSIONS.
CHRONIC EFFECTS OF OVEREXPOSURE MAY INCLUDE KIDNEY AND/OR LIVER DAMAGE.

TARGET ORGANS
CENTRAL NERVOUS SYSTEM, LIVER, KIDNEYS, SKIN

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
NONE IDENTIFIED

ROUTES OF ENTRY
INHALATION, ABSORPTION, INGESTION, EYE CONTACT, SKIN CONTACT

EMERGENCY AND FIRST AID PROCEDURES
CALL A PHYSICIAN.
IF SWALLOWED, DO NOT INDUCE VOMITING.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. WASH CLOTHING BEFORE RE-USE.

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6 - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, FLAME, OTHER SOURCES OF IGNITION

INCOMPATIBLES: STRONG OXIDIZING AGENTS, NITRIC ACID, SULFURIC ACID,CHLORINE

DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE

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7 - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME	TOLUENE
HAZARD CLASS	FLAMMABLE LIQUID
UN/NA	UN1294
LABELS	FLAMMABLE LIQUID
REPORTABLE QUANTITY	1000 LBS.

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME	TOLUENE
HAZARD CLASS	3.2
UN/NA	UN1294
LABELS	FLAMMABLE LIQUID

MSDS for ETHYLBENZENE

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1 - PRODUCT IDENTIFICATION

Common Name: Ethyl Benzene
CAS Number: 100-41-4
DOT Number: UN 1175
Date: July, 1988

HAZARD SUMMARY

* Ethyl Benzene can affect you when breathed in and by passing through your skin.
* Exposure can irritate the eyes, nose and throat.
* High concentration can cause you to become dizzy, lightheaded, or to pass out. Very high levels can cause paralysis, trouble breathing and death.
* Contact can irritate the skin. Prolonged exposure can cause drying, scaling and even blistering.
* High exposure may damage the liver.
* Ethyl Benzene is a FLAMMABLE LIQUID and a FIRE HAZARD.

IDENTIFICATION

Ethyl Benzene is a colorless liquid with an aromatic odor. It is used in the production of styrene and synthetic polymers, as a solvent and as a component of automotive and aviation fuels.

HOW TO DETERMINE IF YOU ARE BEING EXPOSED

* Exposure to hazardous substances should be routinely evaluated. This may include collecting air samples. Under OSHA 1910.20, you have a legal right to obtain copies of sampling results from your employer. If you think you are experiencing any work related health problems, see a doctor trained to recognize occupational diseases. Take this Fact Sheet with you.
* ODOR THRESHOLD = 2.3 ppm.
* The odor threshold only serves as a warning of exposure. Not smelling it does not mean you are not being exposed.

WORKPLACE EXPOSURE LIMITS

OSHA: The legal airborne permissible exposure limit (PEL) is 100 ppm averaged over an 8 hour workshift.

ACGIH: The recommended airborne exposure limit is 100 ppm averaged over an 8 hour workshift and 125 ppm as a STEL (short term exposure limit).

* The above exposure limits are for air levels only. When skin contact also occurs, you may be overexposed, even though air levels are less than the limits listed above.

WAYS OF REDUCING EXPOSURE

* Where possible, enclose operations and use local exhaust ventilation at the site of chemical release. If local exhaust ventilation or enclosure is not used, respirators should be worn.
* Wear protective work clothing.
* Wash thoroughly immediately after exposure to Ethyl Benzene and at the end of the workshift.
* Post hazard and warning information in the work area. In addition, as part of an ongoing education and training effort, communicate all information on the health and safety hazards of Ethyl Benzene to potentially exposed workers.

This Fact Sheet is a summary source of information of all potential and most severe health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

HEALTH HAZARD INFORMATION

Acute Health Effects

The following acute (short term) health effects may occur immediately or shortly after exposure to Ethyl Benzene:

* Ethyl Benzene can irritate the eyes, nose and throat.
* Exposure to high concentrations can cause you to become dizzy, lightheaded and to pass out. Very high levels can cause trouble breathing, paralysis and death.
* Contact with Ethyl Benzene can irritate the skin.

Chronic Health Effects

The following chronic (long term) health effects can occur at some time after exposure to Ethyl Benzene and can last for months or years:

Cancer Hazard

* According to the information presently available to the New Jersey Department of Health, Ethyl Benzene has not been tested for its ability to cause cancer in animals.

Reproductive Hazard

* There is limited evidence that Ethyl Benzene may damage the developing fetus.

Other Long Term Effects

* Repeated contact can cause drying and scaling of the skin. Prolonged contact can cause blistering.
* High exposure may cause liver damage.
* This chemical has not been adequately evaluated to determine whether brain or other nerve damage could occur with repeated exposure. However, many solvents and other petroleum based chemicals have been shown to cause such damage. Effects may include reduced memory and concentration, personality changes (withdrawal, irritability), fatigue, sleep disturbances, reduced coordination, and/or effects on nerves supplying internal organs (autonomic nerves) and/or nerves to the arms and legs (weakness, "pins and needles").

MEDICAL TESTING

If symptoms develop or overexposure is suspected, the following may be useful:

* Liver function tests.
* Interview for brain effects, including recent memory, mood (irritability, withdrawal), concentration, headaches, malaise and altered sleep patterns. Consider cerebellar, autonomic and peripheral nervous system evaluation. Positive and borderline individuals should be referred for neuropsychological testing.

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

WORKPLACE CONTROLS AND PRACTICES

Unless a less toxic chemical can be substituted for a hazardous substance, ENGINEERING CONTROLS are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the

controls mentioned above, but is sometimes necessary.
In evaluating the controls present in your workplace, consider: (1) how hazardous the substance is, (2) how much of the substance is released into the workplace and (3) whether harmful skin or eye contact could occur. Special controls should be in place for highly toxic chemicals or when significant skin, eye, or breathing exposures are possible.

In addition, the following controls are recommended:

* Where possible, automatically pump liquid Ethyl Benzene from drums or other storage containers to process containers.
* Before entering a confined space where Ethyl Benzene may be present, check to make sure that an explosive concentration does not exist.

Good WORK PRACTICES can help to reduce hazardous exposures. The following work practices are recommended:

* Workers whose clothing has been contaminated by Ethyl Benzene should change into clean clothing promptly.
* Contaminated work clothes should be laundered by individuals who have been informed of the hazards of exposure to Ethyl Benzene.
* If there is the possibility of skin exposure, emergency shower facilities should be provided.
* On skin contact with Ethyl Benzene, immediately wash or shower to remove the chemical. At the end of the workshift, wash any areas of the body that may have contacted Ethyl Benzene, whether or not known skin contact has occurred.
* Do not eat, smoke, or drink where Ethyl Benzene is handled, processed, or stored, since the chemical can be swallowed. Wash hands carefully before eating or smoking.

PERSONAL PROTECTIVE EQUIPMENT

WORKPLACE CONTROLS ARE BETTER THAN PERSONAL PROTECTIVE EQUIPMENT.

However, for some jobs (such as outside work, confined space entry, jobs done only once in a while, or jobs done while workplace controls are being installed), personal protective equipment may be appropriate.

The following recommendations are only guidelines and may not apply to every situation.

Clothing

* Avoid skin contact with Ethyl Benzene. Wear solvent resistant gloves and clothing. Safety equipment suppliers/ manufacturers can provide recommendations on the most protective glove/ clothing material for your operation.
* All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.

Eye Protection

* Wear splash proof chemical goggles and face shield when working with liquid, unless full facepiece respiratory protection is worn.

Respiratory Protection

IMPROPER USE OF RESPIRATORS IS DANGEROUS. Such equipment should only be used if the employer has a written program that takes into account workplace conditions, requirements for worker training, respirator fit testing and medical exams, as described in OSHA 1910.134.

* Where the potential exists for exposures over 100 ppm, use a MSHA/NIOSH approved respirator with an organic vapor cartridge/canister. More protection is provided by a full facepiece respirator than by a half mask respirator, and even greater protection is provided by a powered air purifying respirator.
* If while wearing a filter, cartridge or canister respirator, you can smell, taste, or otherwise detect Ethyl Benzene, or in the case of a full facepiece respirator you experience eye irritation, leave the area immediately. Check to make sure the respirator to face seal is still good. If it is, replace the filter, cartridge, or canister. If the seal is no longer good, you may need a new respirator.
* Be sure to consider all potential exposures in your workplace. You may need a combination of filters, prefilters, cartridges, or canisters to protect against different forms of a chemical (such as vapor and mist) or against a mixture of chemicals.
* Exposure to 2,000 ppm is immediately dangerous to life and health. If the possibility of exposures above 2,000 ppm exists, use a MSHA/NIOSH approved self contained breathing apparatus with a full facepiece operated in continuous flow or other positive pressure mode.

HANDLING AND STORAGE

* Prior to working with Ethyl Benzene you should be trained on

its proper handling and storage.

* Ethyl Benzene must be stored to avoid contact with STRONG OXIDIZERS since violent reactions occur.
* Sources of ignition, such as smoking and open flames, are prohibited where Ethyl Benzene is handled, used, or stored.
* Metal containers involving the transfer of 5 gallons or more of Ethyl Benzene should be grounded and bonded. Drums must be equipped with self closing valves, pressure vacuum bungs, and flame arresters.
* Use only non sparking tools and equipment, especially when opening and closing containers of Ethyl Benzene.

Common Name: Ethyl Benzene
DOT Number: UN 1175
DOT Emergency Guide code: 26
CAS Number: 100-41-4

Hazard rating	NJ DOH	NFPA
FLAMMABILITY	-	3
REACTIVITY	-	0

POISONOUS GAS IS PRODUCED IN FIRE
CONTAINERS MAY EXPLODE IN FIRE

Hazard Rating Key: 0=minimal; 1=slight; 2=moderate; 3=serious; 4=severe

FIRE HAZARDS

* Ethyl Benzene is a FLAMMABLE LIQUID.
* Use dry chemical, CO2, water spray, or foam extinguishers.
* POISONOUS GAS IS PRODUCED IN FIRE.
* CONTAINERS MAY EXPLODE IN FIRE.
* Vapors may travel to a source of ignition and flash back.
* If employees are expected to fight fires, they must be trained and equipped as stated in OSHA 1910.156.

SPILLS AND EMERGENCIES

If Ethyl Benzene is spilled or leaked, take the following steps:

* Restrict persons not wearing protective equipment from area of spill or leak until cleanup is complete.
* Remove all ignition sources.
* Ventilate area of spill or leak.
* It may be necessary to contain and dispose of Ethyl Benzene as

a HAZARDOUS WASTE. Contact your Department of Environmental Protection (DEP) or your regional office of the federal Environmental Protection Agency (EPA) for specific recommendations.

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FOR LARGE SPILLS AND FIRES immediately call your fire department.

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FIRST AID

POISON INFORMATION

Eye Contact

* Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids.

Skin Contact

* Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

Breathing

* Remove the person from exposure.
* Begin rescue breathing if breathing has stopped and CPR if heart action has stopped.
* Transfer promptly to a medical facility.

PHYSICAL DATA

Vapor Pressure: 7.1 mmhg at 68oF (20oC)
Flash Point: 59oF (15oC)
Water Solubility: Slightly soluble

OTHER COMMONLY USED NAMES

Chemical Name:
Benzene, Ethyl

Other Names and Formulations:
Ethylbenzol; Phenylethane.

ECOLOGICAL INFORMATION

Ethyl Benzene is a colorless, flammable liquid which is mainly used as a precursor to styrene. It is present in "mixed xylenes," which are largely derived from petroleum. Ethyl Benzene may enter the

environment from petroleum-based industrial discharges or spills.

ACUTE (SHORT-TERM) ECOLOGICAL EFFECTS

Acute toxic effects may include the death of animals, birds, or fish, and death or low growth rate in plants. Acute effects are seen two to four days after animals or plants come in contact with a toxic chemical substance.

Ethyl Benzene has high acute toxicity to aquatic life. It has caused injury to various agricultural crops. Insufficient data are available to evaluate or predict the short-term effects of Ethyl Benzene to birds or land animals.

CHRONIC (LONG-TERM) ECOLOGICAL EFFECTS

Chronic toxic effects may include shortened lifespan, reproductive problems, lower fertility, and changes in appearance or behavior. Chronic effects can be seen long after first exposure(s) to a toxic chemical.

Ethyl Benzene has high chronic toxicity to aquatic life. Insufficient data are available to evaluate or predict the long-term effects of Ethyl Benzene to plants, birds, or land animals.

WATER SOLUBILITY

Ethyl Benzene is moderately soluble in water. Concentrations of between 1 to 1,000 milligrams will mix with a liter of water.

DISTRIBUTION AND PERSISTENCE IN THE ENVIRONMENT

Ethyl Benzene is non-persistent in water, with a half-life -due to volatilization - of less than 2 days. The half-life of a pollutant is the amount of time it takes for one-half of the chemical to be degraded. About 99.5% of Ethyl Benzene will eventually end up in air; the rest will end up in the water.

BIOACCUMULATION IN AQUATIC ORGANISMS

Some substances increase in concentration, or bioaccumulate, in living oranisms as they breathe contaminated air, drink contaminated water, or eat contaminated food. These chemicals can become concentrated in the tissues and internal organs of animals and humans.

The concentration of Ethyl Benzene found in fish tissues is expected to be somewhat higher than the average concentration of Ethyl Benzene in the water from which the fish was taken.

SUPPORT DOCUMENT: AQUIRE Database, ERL-Duluth, U.S. EPA, Phytotox

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MSDS for M-XYLENE

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1 - PRODUCT IDENTIFICATION

PRODUCT NAME: M-XYLENE
FORMULA: C8H10
FORMULA WT: 106.17
CAS NO.: 108-38-3
NIOSH/RTECS NO.: ZE2275000
COMMON SYNONYMS: 1,3-XYLENE; M-XYLOL
PRODUCT CODES: X523
EFFECTIVE: 09/11/86
REVISION #03

PRECAUTIONARY LABELLING
BAKER SAF-T-DATA(TM) SYSTEM

HEALTH - 2 MODERATE
FLAMMABILITY - 3 SEVERE (FLAMMABLE)
REACTIVITY - 0 NONE
CONTACT - 2 MODERATE

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

SAFETY GLASSES; LAB COAT; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

PRECAUTIONARY LABEL STATEMENTS

WARNING
FLAMMABLE
CAUSES IRRITATION
HARMFUL IF SWALLOWED OR INHALED

KEEP AWAY FROM HEAT, SPARKS, FLAME. AVOID CONTACT WITH EYES, SKIN, CLOTHING. AVOID BREATHING VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. IN CASE OF FIRE, USE ALCOHOL FOAM, DRY CHEMICAL, CARBON DIOXIDE - WATER MAY BE INEFFECTIVE. FLUSH SPILL AREA WITH WATER SPRAY.

SAF-T-DATA(TM) STORAGE COLOR CODE: RED (FLAMMABLE)

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2 - HAZARDOUS COMPONENTS

COMPONENT	%	CAS NO.
M-XYLENE	90-100	108-38-3

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3 - PHYSICAL DATA

BOILING POINT: 139 C (282 F) VAPOR PRESSURE(MM HG): 8.3

MELTING POINT: -48 C (-54 F) VAPOR DENSITY(AIR=1): 3.66

SPECIFIC GRAVITY: 0.87 (H2O=1) EVAPORATION RATE: 0.51 (BUTYL ACETATE=1)

SOLUBILITY(H2O): NEGLIGIBLE (LESS THAN 0.1 %) % VOLATILES BY VOLUME: 100

APPEARANCE & ODOR: CLEAR, COLORLESS LIQUID WITH AROMATIC ODOR.

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4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP 27 C (81 F) NFPA 704M RATING: 2-3-0

FLAMMABLE LIMITS: UPPER - 7.0 % LOWER - 1.1 %

FIRE EXTINGUISHING MEDIA
USE ALCOHOL FOAM, DRY CHEMICAL OR CARBON DIOXIDE.
(WATER MAY BE INEFFECTIVE.)

SPECIAL FIRE-FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE & EXPLOSION HAZARDS

VAPORS MAY FLOW ALONG SURFACES TO DISTANT IGNITION SOURCES AND FLASH BACK. CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. CONTACT WITH STRONG OXIDIZERS MAY CAUSE FIRE.

TOXIC GASES PRODUCED

CARBON MONOXIDE, CARBON DIOXIDE

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5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE (TLV/TWA): 435 MG/M3 (100 PPM)

SHORT-TERM EXPOSURE LIMIT (STEL): 655 MG/M3 (100 PPM)

PERMISSIBLE EXPOSURE LIMIT (PEL): 435 MG/M3 (100 PPM)

TOXICITY: LD50 (ORAL-RAT)(MG/KG) - 5000
LD50 (SKN-RABBIT) (G/KG) - 14.1

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE

INHALATION AND INGESTION ARE HARMFUL AND MAY BE FATAL. INHALATION OF VAPORS MAY CAUSE HEADACHE, NAUSEA, VOMITING, DIZZINESS, DROWSINESS, IRRITATION OF RESPIRATORY TRACT, AND LOSS OF CONSCIOUSNESS. INHALATION OF VAPORS MAY CAUSE NARCOSIS.

CONTACT WITH SKIN OR EYES MAY CAUSE IRRITATION.
INGESTION MAY CAUSE NAUSEA, VOMITING, HEADACHES, DIZZINESS, GASTRO-INTESTINAL IRRITATION, BLURRED VISION, LOWERING OF BLOOD PRESSURE. CHRONIC EFFECTS OF OVEREXPOSURE MAY INCLUDE KIDNEY AND/OR LIVER DAMAGE.

TARGET ORGANS

CENTRAL NERVOUS SYSTEM, EYES, SKIN, GI TRACT, BLOOD, LIVER AND KIDNEYS

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

NONE IDENTIFIED

ROUTES OF ENTRY

INGESTION, INHALATION, SKIN CONTACT, EYE CONTACT, ABSORPTION

EMERGENCY AND FIRST AID PROCEDURES
CALL A PHYSICIAN.
IF SWALLOWED, DO NOT INDUCE VOMITING.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

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6 - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, FLAME, OTHER SOURCES OF IGNITION

INCOMPATIBLES: STRONG OXIDIZING AGENTS

DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE

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7 - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. SHUT OFF IGNITION SOURCES; NO FLARES, SMOKING OR FLAMES IN AREA. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH AREA WITH WATER.

J. T. BAKER SOLUSORB(R) SOLVENT ADSORBENT IS RECOMMENDED FOR SPILLS OF THIS PRODUCT.

DISPOSAL PROCEDURE

DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER: U239 (TOXIC WASTE)

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8 - PROTECTIVE EQUIPMENT

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO 1000 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE IS RECOMMENDED. ABOVE THIS LEVEL, A SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

EYE/SKIN PROTECTION: SAFETY GOGGLES, UNIFORM, APRON, NITRILE GLOVES ARE RECOMMENDED.

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9 - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA(TM) STORAGE COLOR CODE: RED (FLAMMABLE)

SPECIAL PRECAUTIONS

BOND AND GROUND CONTAINERS WHEN TRANSFERRING LIQUID. KEEP CONTAINER TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED, FLAMMABLE LIQUID STORAGE AREA.

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10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME XYLENE
HAZARD CLASS FLAMMABLE LIQUID
UN/NA UN1307
LABELS FLAMMABLE LIQUID
REPORTABLE QUANTITY 1000 LBS.

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME XYLENES
HAZARD CLASS 3.3
UN/NA UN1307
LABELS FLAMMABLE LIQUID

MSDS for TRICHLOROETHYLENE

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1 - PRODUCT IDENTIFICATION

PRODUCT NAME: TRICHLOROETHYLENE
FORMULA: C2HCL3
FORMULA WT: 131.40
CAS NO.: 79-01-6
NIOSH/RTECS NO.: KX4550000
COMMON SYNONYMS: TRICHLOROETHENE; ETHINYL TRICHLORIDE; ACETYLENE TRICHLORIDE; TCE

PRODUCT CODES: 5376,9458,9454,9455,9464,9473
EFFECTIVE: 01/22/87
REVISION #03

PRECAUTIONARY LABELLING
BAKER SAF-T-DATA(TM) SYSTEM

HEALTH - 3 SEVERE (CANCER CAUSING)
FLAMMABILITY - 1 SLIGHT
REACTIVITY - 1 SLIGHT
CONTACT - 1 SLIGHT

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

PRECAUTIONARY LABEL STATEMENTS

WARNING
HARMFUL IF SWALLOWED OR INHALED
CAUSES IRRITATION

NOTE: THIS MATERIAL OR ITS VAPORS IN CONTACT WITH FLAMES OR HOT GLOWING SURFACES MAY FORM CORROSIVE ACID FUMES.

NOTE: REPORTED AS CAUSING CANCER IN LABORATORY ANIMALS. EXERCISE DUE CARE. AVOID CONTACT WITH EYES, SKIN, CLOTHING. DO NOT BREATHE VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING.

SAF-T-DATA(TM) STORAGE COLOR CODE: BLUE (HEALTH)

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2 - HAZARDOUS COMPONENTS

COMPONENT	%	CAS NO.
TRICHLOROETHYLENE	90-100	79-01-6

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3 - PHYSICAL DATA

BOILING POINT: 87 C (189 F) VAPOR PRESSURE(MM HG): 58

MELTING POINT: -73 C (-99 F) VAPOR DENSITY(AIR=1): 4.53

SPECIFIC GRAVITY: 1.47 (H2O=1) EVAPORATION RATE: N/A (BUTYL ACETATE=1)

SOLUBILITY(H2O): SLIGHT (0.1 TO 1 %) % VOLATILES BY VOLUME: 100

APPEARANCE & ODOR: COLORLESS LIQUID WITH CHLOROFORM ODOR.

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4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP N/A NFPA 704M RATING: 2-1-0

FLAMMABLE LIMITS: UPPER - 10.5 % LOWER - 8.0 %

FIRE EXTINGUISHING MEDIA
USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

SPECIAL FIRE-FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE & EXPLOSION HAZARDS

GIVES OFF FLAMMABLE VAPORS. VAPORS MAY FORM EXPLOSIVE MIXTURE WITH AIR. CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. CONTACT WITH STRONG OXIDIZERS MAY CAUSE FIRE.

TOXIC GASES PRODUCED

HYDROGEN CHLORIDE, PHOSGENE, CHLORINE, CARBON MONOXIDE, CARBON DIOXIDE

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5 - HEALTH HAZARD DATA

SOME EXPERIMENTS WITH TEST ANIMALS INDICATED THAT THIS SUBSTANCE MAY BE ANTICIPATED TO BE A CARCINOGEN.

THRESHOLD LIMIT VALUE (TLV/TWA): 270 MG/M3 (50 PPM)

SHORT-TERM EXPOSURE LIMIT (STEL): 1080 MG/M3 (200 PPM)

PERMISSIBLE EXPOSURE LIMIT (PEL): MG/M3 (100 PPM)

TOXICITY: LD50 (ORAL-RAT)(MG/KG) - 7193
LD50 (IPR-MOUSE)(MG/KG) - 3000
LD50 (IV-MOUSE) (MG/KG) - 34

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE

INHALATION OF VAPORS MAY CAUSE HEADACHE, NAUSEA, VOMITING, DIZZINESS, DROWSINESS, IRRITATION OF RESPIRATORY TRACT, AND LOSS OF CONSCIOUSNESS.
INHALATION OF VAPORS MAY CAUSE PULMONARY EDEMA. CONTACT WITH SKIN OR EYES MAY CAUSE IRRITATION. PROLONGED EXPOSURE MAY CAUSE DERMATITIS. INGESTION MAY CAUSE NAUSEA, VOMITING, HEADACHES,DIZZINESS, GASTROINTESTINAL IRRITATION, CENTRAL NERVOUS SYSTEM DEPRESSION AND HEARING LOSS.

CHRONIC EFFECTS OF OVEREXPOSURE MAY INCLUDE DAMAGE TO KIDNEYS, LIVER, LUNGS, BLOOD, OR CENTRAL NERVOUS SYSTEM.

TARGET ORGANS

RESPIRATORY SYSTEM, HEART, LIVER, KIDNEYS, CENTRAL NERVOUS SYSTEM

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
NONE IDENTIFIED

ROUTES OF ENTRY
INHALATION, INGESTION, EYE CONTACT, SKIN CONTACT

EMERGENCY AND FIRST AID PROCEDURES
CALL A PHYSICIAN.
IF SWALLOWED, DO NOT INDUCE VOMITING.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT
LEAST 15 MINUTES. FLUSH SKIN WITH WATER.

ACCEPTABLE MAXIMUM PEAK ABOVE THE ACCEPTANCE CEILING CONCENTRATION FOR AN
EIGHT-HOUR SHIFT = 300 PPM FOR 5 MINUTES IN ANY 2 HOURS. (PEL)
CEILING = 200 PPM.

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6 - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, FLAME, OTHER SOURCES OF IGNITION, LIGHT

INCOMPATIBLES: CHEMICALLY ACTIVE METALS, STRONG BASES, STRONG OXIDIZING AGENTS

DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE, PHOSGENE, CHLORINE, CARBON MONOXIDE, CARBON DIOXIDE

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7 - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. TAKE UP WITH SAND OR OTHER

NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH SPILL AREA WITH WATER.

DISPOSAL PROCEDURE
DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL
ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER: U228 (TOXIC WASTE)

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8 - PROTECTIVE EQUIPMENT

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET
TLV REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO 1000 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE IS RECOMMENDED. ABOVE THIS LEVEL, A SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, NEOPRENE GLOVES ARE RECOMMENDED.

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9 - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA(TM) STORAGE COLOR CODE: BLUE (HEALTH)

SPECIAL PRECAUTIONS
KEEP CONTAINER TIGHTLY CLOSED. STORE IN SECURE POISON AREA.

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10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME TRICHLOROETHYLENE (AIR ONLY)
HAZARD CLASS ORM-A

UN/NA	UN1710
LABELS	NONE
REPORTABLE QUANTITY	1000 LBS.

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME	TRICHLOROETHYLENE
HAZARD CLASS	6.1
UN/NA	UN1710
LABELS	HARMFUL - STOW AWAY FROM FOOD STUFFS

MSDS for 1,2-DICHLOROETHANE

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1 - PRODUCT IDENTIFICATION

PRODUCT NAME: 1,2-DICHLOROETHANE
FORMULA: CLCH2CH2CL
FORMULA WT: 98.96
CAS NO.: 107-06-2
NIOSH/RTECS NO.: KL0525000
COMMON SYNONYMS: ETHYLENE DICHLORIDE; 1,2-BICHLOROETHANE; ETHYLENE CHLORIDE
PRODUCT CODES: H076,9302
EFFECTIVE: 01/22/87
REVISION #04

PRECAUTIONARY LABELLING
BAKER SAF-T-DATA(TM) SYSTEM

HEALTH - 3 SEVERE (CANCER CAUSING)
FLAMMABILITY - 3 SEVERE (FLAMMABLE)
REACTIVITY - 1 SLIGHT
CONTACT - 2 MODERATE

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

PRECAUTIONARY LABEL STATEMENTS

WARNING
FLAMMABLE
CAUSES IRRITATION
HARMFUL IF SWALLOWED OR INHALED

NOTE: REPORTED AS CAUSING CANCER IN LABORATORY ANIMALS. EXERCISE DUE CARE. KEEP AWAY FROM HEAT, SPARKS, FLAME. AVOID CONTACT WITH EYES, SKIN, CLOTHING. AVOID BREATHING VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. IN CASE OF FIRE, USE ALCOHOL FOAM, DRY CHEMICAL, CARBON DIOXIDE - WATER MAY BE INEFFECTIVE. FLUSH SPILL AREA WITH WATER SPRAY.

SAF-T-DATA(TM) STORAGE COLOR CODE: RED (FLAMMABLE)

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2 - HAZARDOUS COMPONENTS

COMPONENT	%	CAS NO.
1,2-DICHLOROETHANE	90-100	107-06-2

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3 - PHYSICAL DATA

BOILING POINT: 84 C (183 F) VAPOR PRESSURE(MM HG): 62

MELTING POINT: -36 C (-33 F) VAPOR DENSITY(AIR=1): 3.4

SPECIFIC GRAVITY: 1.25 (H2O=1) EVAPORATION RATE: 6.5 (BUTYL ACETATE=1)

SOLUBILITY(H2O): SLIGHT (0.1 TO 1 %) % VOLATILES BY VOLUME: 100

APPEARANCE & ODOR: CLEAR LIQUID WITH SWEET ODOR LIKE CHLOROFORM.

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4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP 13 C (56 F) NFPA 704M RATING: 2-3-0

FLAMMABLE LIMITS: UPPER - 15.9 % LOWER - 6.2 %

FIRE EXTINGUISHING MEDIA
USE ALCOHOL FOAM, DRY CHEMICAL OR CARBON DIOXIDE.
(WATER MAY BE INEFFECTIVE.)

SPECIAL FIRE-FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE & EXPLOSION HAZARDS

VAPORS MAY FLOW ALONG SURFACES TO DISTANT IGNITION SOURCES AND FLASH BACK. CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. CONTACT WITH STRONG OXIDIZERS MAY CAUSE FIRE.

TOXIC GASES PRODUCED

HYDROGEN CHLORIDE, PHOSGENE, CARBON MONOXIDE, CARBON DIOXIDE

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5 - HEALTH HAZARD DATA

THIS SUBSTANCE IS LISTED AS AN NTP ANTICIPATED HUMAN CARCINOGEN, IARC ANIMAL CARCINOGEN. ACCEPTABLE MAXIMUM PEAK ABOVE THE ACCEPTANCE CEILING CONCENTRATION FOR AN EIGHT-HOUR SHIFT = 200 PPM FOR 5 MINUTES IN ANY 3 HOURS.

(PEL) CEILING = 100 PPM.

THRESHOLD LIMIT VALUE (TLV/TWA): 40 MG/M3 (10 PPM)

SHORT-TERM EXPOSURE LIMIT (STEL): 60 MG/M3 (15 PPM)

PERMISSIBLE EXPOSURE LIMIT (PEL): MG/M3 (50 PPM)

TOXICITY: LD50 (ORAL-RAT)(MG/KG) - 670

CARCINOGENICITY: NTP: YES IARC: NO Z LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE

INHALATION AND INGESTION ARE HARMFUL AND MAY BE FATAL. INHALATION MAY CAUSE HEADACHE, NAUSEA, VOMITING, DIZZINESS, NARCOSIS, SUFFOCATION, LOWER BLOOD PRESSURE, CENTRAL NERVOUS SYSTEM DEPRESSION. INHALATION OF VAPORS MAY CAUSE PULMONARY EDEMA. CONTACT WITH SKIN OR EYES MAY CAUSE SEVERE IRRITATION OR BURNS. PROLONGED CONTACT MAY CAUSE SKIN SENSITIZATION. SUBSTANCE IS READILY ABSORBED THROUGH THE SKIN. INGESTION MAY CAUSE NAUSEA, VOMITING, HEADACHES, DIZZINESS, GASTROINTESTINAL IRRITATION. CHRONIC EFFECTS OF OVEREXPOSURE MAY INCLUDE DAMAGE TO KIDNEYS, LIVER, LUNGS, BLOOD, OR CENTRAL NERVOUS SYSTEM.

TARGET ORGANS

KIDNEYS, LIVER, EYES, SKIN, CENTRAL NERVOUS SYSTEM

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
BRONCHITIS, KIDNEY, LIVER, OR BLOOD DISORDERS, HEART DISORDERS, ASTHMA, CIRCULATOY DISORDERS

ROUTES OF ENTRY
INGESTION, INHALATION, ABSORPTION, EYE CONTACT, SKIN CONTACT

EMERGENCY AND FIRST AID PROCEDURES
CALL A PHYSICIAN.
IF SWALLOWED, DO NOT INDUCE VOMITING.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. FLUSH SKIN WITH WATER.

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6 - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILLNOT OCCUR

CONDITIONS TO AVOID: HEAT, FLAME, OTHER SOURCES OF IGNITION

INCOMPATIBLES: STRONG OXIDIZING AGENTS, ALUMINUM, MAGNESIUM, AMMONIA, STRONG BASES, NITRIC ACID, POTASSIUM METAL

DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE, PHOSGENE, CARBON MONOXIDE, CARBON DIOXIDE

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7 - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. SHUT OFF IGNITION SOURCES; NO FLARES, SMOKING OR FLAMES IN AREA. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH AREA WITH WATER.

J. T. BAKER SOLUSORB(R) SOLVENT ADSORBENT IS RECOMMENDED FOR SPILLS OF THIS PRODUCT.

DISPOSAL PROCEDURE

DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER: D001 (IGNITABLE WASTE)

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8 - PROTECTIVE EQUIPMENT

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS ABOVE 10 PPM, A SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, NEOPRENE GLOVES ARE RECOMMENDED.

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9 - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA(TM) STORAGE COLOR CODE: RED (FLAMMABLE)

SPECIAL PRECAUTIONS

BOND AND GROUND CONTAINERS WHEN TRANSFERRING LIQUID. KEEP CONTAINER TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED, FLAMMABLE LIQUID STORAGE AREA.

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10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME ETHYLENE DICHLORIDE
HAZARD CLASS FLAMMABLE LIQUID
UN/NA UN1184
LABELS FLAMMABLE LIQUID
REPORTABLE QUANTITY 5000 LBS.

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME	ETHYLENE DICHLORIDE
HAZARD CLASS	3.2, 6.1
UN/NA	UN1184
LABELS	FLAMMABLE LIQUID, POISON

MSDS for METHYLENE CHLORIDE

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1 - PRODUCT IDENTIFICATION

PRODUCT NAME: METHYLENE CHLORIDE
FORMULA: CH2CL2
FORMULA WT: 84.93
CAS NO.: 75-09-2
NIOSH/RTECS NO.: PA8050000
COMMON SYNONYMS: DICHLOROMETHANE; METHYLENE DICHLORIDE; METHANE DICHLORIDE
PRODUCT CODES: 9324,9341,Q480,9330,5378,5531,9315,9329,9264
EFFECTIVE: 10/24/86
REVISION #03

PRECAUTIONARY LABELLING
BAKER SAF-T-DATA(TM) SYSTEM

HEALTH - 3 SEVERE (CANCER CAUSING)
FLAMMABILITY - 1 SLIGHT
REACTIVITY - 1 SLIGHT
CONTACT - 2 MODERATE

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
PRECAUTIONARY LABEL STATEMENTS

POISON DANGER
CAUSES IRRITATION
HARMFUL IF ABSORBED THROUGH SKIN
MAY BE FATAL IF SWALLOWED OR INHALED

NOTE: REPORTED AS CAUSING CANCER IN LABORATORY ANIMALS. EXERCISE DUE CARE. AVOID CONTACT WITH EYES, SKIN, CLOTHING. KEEP IN TIGHTLY CLOSED CONTAINER. WASH THOROUGHLY AFTER HANDLING.

SAF-T-DATA(TM) STORAGE COLOR CODE: BLUE (HEALTH)

2 - HAZARDOUS COMPONENTS

COMPONENT	%	CAS NO.
METHYLENE CHLORIDE	90-100	75-09-2

3 - PHYSICAL DATA

BOILING POINT: 40 C (104 F) VAPOR PRESSURE(MM HG): 350

MELTING POINT: -95 C (-139 F) VAPOR DENSITY(AIR=1): 2.9

SPECIFIC GRAVITY: 1.32 (H2O=1) EVAPORATION RATE: 27.5 (BUTYL ACETATE=1)

SOLUBILITY(H2O): MODERATE (1 TO 10 %) % VOLATILES BY VOLUME: 100

APPEARANCE & ODOR: COLORLESS, VOLATILE LIQUID WITH PENETRATING, ETHER-LIKE ODOR.

4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP N/A NFPA 704M RATING: 2-1-0

FLAMMABLE LIMITS: UPPER - 19 % LOWER - 12 %

FIRE EXTINGUISHING MEDIA

USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

SPECIAL FIRE-FIGHTING PROCEDURES

FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE & EXPLOSION HAZARDS

CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE.

TOXIC GASES PRODUCED
HYDROGEN CHLORIDE, PHOSGENE, CARBON MONOXIDE, CARBON DIOXIDE

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5 - HEALTH HAZARD DATA

ACGIH DENOTES THAT THIS SUBSTANCE IS SUSPECT OF CARCINOGENIC POTENTIAL FOR MAN.

THRESHOLD LIMIT VALUE (TLV/TWA): 350 MG/M3 (100 PPM)

SHORT-TERM EXPOSURE LIMIT (STEL): 1740 MG/M3 (500 PPM)

PERMISSIBLE EXPOSURE LIMIT (PEL): MG/M3 (500 PPM)

TOXICITY: LD50 (ORAL-RAT)(MG/KG) - 2524
LD50 (IPR-MOUSE)(MG/KG) - 1500
LD50 (SCU-MOUSE)(MG/KG) - 6460
LC50 (INHAL-RAT-)(G/M3) - 88

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE

INHALATION AND INGESTION ARE HARMFUL AND MAY BE FATAL. INHALATION MAY CAUSE HEADACHE, NAUSEA, VOMITING, DIZZINESS, NARCOSIS, SUFFOCATION, LOWER BLOOD PRESSURE, CENTRAL NERVOUS SYSTEM DEPRESSION. INHALATION OF VAPORS MAY CAUSE SEVERE IRRITATION OF THE RESPIRATORY SYSTEM. LIQUID MAY BE IRRITATING TO SKIN AND EYES. PROLONGED SKIN CONTACT MAY RESULT IN DERMATITIS. EYE CONTACT MAY RESULT IN TEMPORARY CORNEAL DAMAGE.

INGESTION MAY CAUSE NAUSEA, VOMITING, GASTROINTESTINAL IRRITATION, AND BURNS TO MOUTH AND THROAT.

TARGET ORGANS
SKIN, CARDIOVASCULAR SYSTEM, CENTRAL NERVOUS SYSTEM, EYES

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
NONE IDENTIFIED

ROUTES OF ENTRY
INHALATION, INGESTION, SKIN CONTACT, EYE CONTACT

EMERGENCY AND FIRST AID PROCEDURES
CALL A PHYSICIAN.
IF SWALLOWED, DO NOT INDUCE VOMITING.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. FLUSH SKIN WITH WATER.

ACCEPTABLE MAXIMUM PEAK ABOVE THE ACCEPTANCE CEILING CONCENTRATION FOR AN 8 HOUR SHIFT = 2000 PPM FOR 5 MINUTES IN ANY 2 HOURS.

(PEL) CEILING = 1000 PPM

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6 - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, FLAME, OTHER SOURCES OF IGNITION, MOISTURE

INCOMPATIBLES: ALKALI METALS, STRONG OXIDIZING AGENTS, STRONG BASES, OXIDES OF NITROGEN, ZINC, ALUMINUM, WATER, MAGNESIUM, AMINES

DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE, PHOSGENE, CARBON MONOXIDE, CARBON DIOXIDE

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7 - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH SPILL AREA WITH WATER.

DISPOSAL PROCEDURE

DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER: U080 (TOXIC WASTE)

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8 - PROTECTIVE EQUIPMENT

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS ABOVE 100 PPM, A SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, POLYVINYL ALCOHOL GLOVES ARE RECOMMENDED.

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9 - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA(TM) STORAGE COLOR CODE: BLUE (HEALTH)

SPECIAL PRECAUTIONS
KEEP CONTAINER TIGHTLY CLOSED. STORE IN SECURE POISON AREA.
KEEP CONTAINERS OUT OF SUN AND AWAY FROM HEAT.

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10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME DICHLOROMETHANE (AIR ONLY)
HAZARD CLASS ORM-A
UN/NA UN1593
LABELS NONE
REPORTABLE QUANTITY 1000 LBS.

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME DICHLOROMETHANE

HAZARD CLASS	6.1
UN/NA	UN1593
LABELS	HARMFUL - STOW AWAY FROM FOOD STUFFS

MSDS for POLYCHLORINATED BIPHENYLS

1 - PRODUCT IDENTIFICATION

Common Name: Polychlorinated Biphenyls
CAS Number: 1336-36-3
DOT Number: UN 2315
Date: May, 1989

HAZARD SUMMARY

* Polychlorinated Biphenyls can affect you when breathed in and by passing through your skin.
* Polychlorinated Biphenyls are CARCINOGENS HANDLE WITH EXTREME CAUTION.
* They may be teratogens and may damage the adult reproductive system.
* Exposure can cause an acne like skin rash (called chloracne).
* They can damage the liver.
* High exposure can damage the nervous system, causing numbness, weakness and tingling ("pins and needles") in the arms and legs.

IDENTIFICATION

Polychlorinated Biphenyls are a mixture of chemicals that are clear to yellow oily liquids or solids. They are used in insulating fluids of electrical systems.

REASON FOR CITATION

* Polychlorinated Biphenyls are on the Hazardous Substance List because they are regulated by OSHA and cited by NIOSH, DOT, IARC, NTP, DEP and EPA.
* These chemicals are on the Special Health Hazard Substance List because they are CARCINOGENS and TERATOGENS.
* Definitions are attached.

HOW TO DETERMINE IF YOU ARE BEING EXPOSED

* Exposure to hazardous substances should be routinely evaluated. This may include collecting personal and area air samples. You can obtain copies of sampling results from your employer. You have a legal right to this information under OSHA 1910.20.

* If you think you are experiencing any work related health problems, see a doctor trained to recognize occupational diseases. Take this Fact Sheet with you.

WORKPLACE EXPOSURE LIMITS

OSHA: The legal airborne permissible exposure limit (PEL) is 1 mg/m3 (42% Chlorine) and 0.5 mg/m3 (54% Chlorine) averaged over an 8 hour workshift.

NIOSH: The recommended airborne exposure limit is 0.001 mg/m3 averaged over a 10 hour workshift.

* The above exposure limits are for air levels only. When skin contact also occurs, you may be overexposed, even though air levels are less than the limits listed above.
* Polychlorinated Biphenyls are PROBABLE CANCER CAUSING AGENTS in humans. There may be no safe level of exposure to carcinogens, so all contact should be reduced to the lowest possible level.

WAYS OF REDUCING EXPOSURE

* Where possible, enclose operations and use local exhaust ventilation at the site of chemical release. If local exhaust ventilation or enclosure is not used, respirators should be worn.
* A regulated, marked area should be established where Polychlorinated Biphenyls are handled, used, or stored as recommended by NIOSH.
* Wear full body protective work clothing.
* Wash thoroughly immediately after exposure to Polychlorinated Biphenyls and on exit from the work area.
* Post hazard and warning information in the work area. In addition, as part of an ongoing education and training effort, communicate all information on the health and safety hazards of Polychlorinated Biphenyls to potentially exposed workers.

This Fact Sheet is a summary source of information of all potential and most severe health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

HEALTH HAZARD INFORMATION

Acute Health Effects

The following acute (short term) health effects may occur immediately or shortly after exposure to Polychlorinated Biphenyls:

* Exposure to the vapor can irritate the eyes, nose and throat.
* High exposures can damage the liver.

Chronic Health Effects
The following chronic (long term) health effects can occur at some time after exposure to Polychlorinated Biphenyls and can last for months or years:

Cancer Hazard
* Polychlorinated Biphenyls are PROBABLE CARCINOGENS in humans. There is some limited evidence that they cause skin cancer in humans and they have been shown to cause liver cancer in animals.
* Many scientists believe there is no safe level of exposure to a CARCINOGEN. Such substances may also have the potential for causing reproductive damage in humans.

Reproductive Hazard
* Polychlorinated Biphenyls may be TERATOGENS in humans since they have been shown to be teratogens in animals.
* They may be passed to a child through mother's milk.
* Polychlorinated Biphenyls can affect the reproductive system of adults.

Other Long Term Effects
* Repeated exposures can cause liver damage.
* Polychlorinated Biphenyls can cause a severe acne like rash (chloracne). This may persist for years.
* High exposures can damage the nervous system, causing numbness, weakness, and tingling ("pins and needles") in the arms and legs.

MEDICAL

Medical Testing
Before beginning employment and at regular times after that, the following are recommended:

* Liver function tests.
* Serum triglycerides level.
* Exam of the skin.

If symptoms develop or overexposure is suspected, the following may

be useful:

* Blood PCB levels.
* Nerve conduction studies should be considered.

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under OSHA 1910.20.

Mixed Exposures
Because more than light alcohol consumption can cause liver damage, drinking alcohol can increase the liver damage caused by Polychlorinated Biphenyls.

WORKPLACE CONTROLS AND PRACTICES

Unless a less toxic chemical can be substituted for a hazardous substance, ENGINEERING CONTROLS are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above, but is sometimes necessary.

in place for highly toxic chemicals or when significant skin, eye, or breathing exposures are possible.

In addition, the following controls are recommended:

* Where possible, automatically transfer Polychlorinated Biphenyls from drums or other storage containers to process containers.
* Specific engineering controls are recommended for this chemical by NIOSH. Refer to the NIOSH criteria document: Occupational Exposure to Polychlorinated Biphenyls #77 225.

Good WORK PRACTICES can help to reduce hazardous exposures. The following work practices are recommended:

* Workers whose clothing has been contaminated by Polychlorinated Biphenyls should change into clean clothing promptly.
* Do not take contaminated work clothes home. Family members

could be exposed.

* Contaminated work clothes should be laundered by individuals who have been informed of the hazards of exposure to Polychlorinated Biphenyls.
* If there is the possibility of skin exposure, emergency shower facilities should be provided.
* On skin contact with Polychlorinated Biphenyls, immediately wash or shower to remove the chemical. At the end of the workshift, wash any areas of the body that may have contacted Polychlorinated Biphenyls, whether or not known skin contact has occurred.
* Do not eat, smoke, or drink where Polychlorinated Biphenyls are handled, processed, or stored, since the chemicals can be swallowed. Wash hands carefully before eating or smoking.
* If solid, when vacuuming, a high efficiency particulate absolute (HEPA) filter should be used, not a standard shop vacuum.

PERSONAL PROTECTIVE EQUIPMENT

WORKPLACE CONTROLS ARE BETTER THAN PERSONAL PROTECTIVE EQUIPMENT.

However, for some jobs (such as outside work, confined space entry, jobs done only once in a while, or jobs done while workplace controls are being installed), personal protective equipment may be appropriate.

The following recommendations are only guidelines and may not apply to every situation.

Clothing

* Avoid skin contact with Polychlorinated Biphenyls. Wear protective gloves and clothing. Safety equipment suppliers/ manufacturers can provide recommendations on the most protective glove/ clothing material for your operation.
* All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.
* Viton is recommended as a good protective material.

Eye Protection

* Eye protection is included in the recommended respiratory protection.

Respiratory Protection

IMPROPER USE OF RESPIRATORS IS DANGEROUS. Such equipment should only be used if the employer has a written program that takes into

account workplace conditions, requirements for worker training, respirator fit testing and medical exams, as described in OSHA 1910.134.

* At any exposure level, use a MSHA/NIOSH approved supplied air respirator with a full facepiece operated in the positive pressure mode or with a full facepiece, hood, or helmet in the continuous flow mode, or use a MSHA/NIOSH approved self contained breathing apparatus with a full facepiece operated in pressure demand or other positive pressure mode.

Common Name: Polychlorinated Biphenyls
DOT Number: UN 2315
DOT Emergency Guide code: 15
CAS Number: 1336-36-3

Hazard rating	NJ DOH	NFPA
FLAMMABILITY	Not Found	Not Rated
REACTIVITY	Not Found	Not Rated

CARCINOGEN
POISONOUS GASES ARE PRODUCED IN FIRE

Hazard Rating Key: 0=minimal; 1=slight; 2=moderate; 3=serious; 4=severe

FIRE HAZARDS

* Polychlorinated Biphenyls may burn, but do not readily ignite.
* Use dry chemical, CO2, water spray, or foam extinguishers.
* POISONOUS GASES ARE PRODUCED IN FIRE, including Dioxin and Chlorinated Dibenzofurans.
* If employees are expected to fight fires, they must be trained and equipped as stated in OSHA 1910.156.

SPILLS AND EMERGENCIES

If Polychlorinated Biphenyls are spilled or leaked, take the following steps:

* Restrict persons not wearing protective equipment from area of spill or leak until clean up is complete.
* Ventilate the area of spill or leak.
* Absorb liquids in vermiculite, dry sand, earth, or a similar material and deposit in sealed containers.

* Collect powdered material in the most convenient and safe manner and deposit in sealed containers.
* It may be necessary to contain and dispose of Polychlorinated Biphenyls as a HAZARDOUS WASTE. Contact your State Environmental Program for specific recommendations.

==========

FOR LARGE SPILLS AND FIRES immediately call your fire department.

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HANDLING AND STORAGE

* Prior to working with Polychlorinated Biphenyls you should be trained on their proper handling and storage.
* Store in tightly closed containers in a cool well ventilated area away from STRONG OXIDIZERS (such as CHLORINE, BROMINE, and FLUORINE).
* Polychlorinated Biphenyls should be handled only in an established, controlled, regulated area.

FIRST AID
POISON INFORMATION

Eye Contact
* Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids.

Skin Contact
* Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

Breathing
* Remove the person from exposure.
* Begin rescue breathing if breathing has stopped and CPR if heart action has stopped.
* Transfer promptly to a medical facility.

PHYSICAL DATA

Flash Point: 383oF (195oC)
Water Solubility: Slightly soluble

Other Names and Formulations:

This Fact Sheet can be used for the following substances:

PCB 1242 (Chlorodiphenyl 42% Chlorine) CAS # 53469 21 9;
PCB 1254 (Chlorodiphenyl 54% Chlorine) CAS # 11097 69 1.

Not intended to be copied and sold for commercial purposes.

NEW JERSEY DEPARTMENT OF HEALTH
Right to Know Program
CN 368, Trenton, NJ 08625 0368

ECOLOGICAL INFORMATION

Polychlorinated biphenyls are complex mixtures of chlorobiphenyls which have been marketed for uses according to the percentage of chlorine in the mixture. The lesser chlorinated PCBs are colorless mobile liquids. Increased chlorination produces more viscous liquids, with further chlorination producing sticky resins or white powders. Because of their heat stability, PCBs were commonly used in electrical capacitors and transformers, and industrial heat transfer applications. PCBs may enter the environment from leakage from industrial and electrical equipment, from industrial discharges, spills, leaching from municipal landfills, and from previously contaminated sediments.

ACUTE (SHORT-TERM) ECOLOGICAL EFFECTS

Acute toxic effects may include the death of animals, birds, or fish, and death or low growth rate in plants. Acute effects are seen two to four days after animals or plants come in contact with a toxic chemical substance.

Polychlorinated biphenyls have high acute toxicity to aquatic life. Insufficient data are available to evaluate or predict the short-term effects of PCBs to plants, birds, or land animals.

CHRONIC (LONG-TERM) ECOLOGICAL EFFECTS

Chronic toxic effects may include shortened lifespan, reproductive problems, lower fertility, and changes in appearance or behavior. Chronic effects can be seen long after first exposure(s) to a toxic chemical.

Polychlorinated biphenyls have high chronic toxicity to aquatic life. Insufficient data are available to evaluate or predict the long-term effects of PCBs to plants, birds, or land animals.

WATER SOLUBILITY

Polychlorinated biphenyls are slightly soluble in water. Concentrations of less than 1 milligram will mix with a liter of water.

DISTRIBUTION AND PERSISTENCE IN THE ENVIRONMENT

The relative distribution of the various PCBs depends on the level of chlorination. Some PCBs will probably be highly persistent in water, with half-lives greater than 200 days. Potential PCB distribution in the various environmental compartments can have the following ranges, depending on degree of chlorination: air, 0-34%; terrestrial soils, 33-52%; water, 0-1.8%; suspended solids, 0.05-0.08%; aquatic biota, 0.02-0.03%; aquatic sediments, 30-50%.

BIOACCUMULATION IN AQUATIC ORGANISMS

Some substances increase in concentration, or bioaccumulate, in living organisms as they breathe contaminated air, drink contaminated water, or eat contaminated food. These chemicals can become concentrated in the tissues and internal organs of animals and humans.

The concentration of polychlorinated biphenyls found in fish tissues is expected to be considerably higher than the average concentration of PCBs in the water from which the fish was taken.

SUPPORT DOCUMENT: AQUIRE Database, ERL-Duluth, U.S. EPA., EEB OCB risk document

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APPENDIX E
RISK-BASED CONCENTRATIONS

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ENGINEERING SCIENCE
OAK RIDGE, TN

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region III
841 Chestnut Street
Philadelphia, Pennsylvania 19107

November 8, 1994

SUBJECT: Risk-Based Concentration Table, Fourth Quarter 1994

FROM: Roy L. Smith, Ph.D., Senior Toxicologist
Technical Support Section (3HW13)

TO: RBC Table mailing list

JAN - JULY 95

Attached is the EPA Region III risk-based concentration (RBC) table, which we have distributed quarterly to all interested parties since 1991. If you are not currently on the mailing list, but would like to be, please contact Anna Poulton (phone: 215-597-3179, fax: 215-597-9890) and give her your name, address, and phone and fax numbers. (This is the only information she needs; faxing parts of the table or cover memo is not necessary.)

IMPORTANT MESSAGE: It's once again time to re-register for the RBC table mailing list. We need to hear from you periodically to ensure that you still have an interest in the table, and that we have your correct address. If you have been on the mailing list since before October 1993, and would like to continue receiving the RBC table, please fax your request to re-register (or register for the first time) to Anna Poulton, along with any needed address or phone number changes. You need not respond if you were placed on the mailing list after October 1993, or if you are a Region III staff member. Please don't phone to re-register; we need hard copy to help justify continued funding. Thanks for your cooperation.

The table contains reference doses and carcinogenic potency slopes (obtained from IRIS through October 1, 1994, HEAST through March 1994, the Superfund Health Risk Technical Support Center, and other EPA sources) for nearly 600 chemicals. These toxicity constants have been combined with "standard" exposure scenarios to calculate RBCs - chemical concentrations corresponding to fixed levels of risk (*i.e.*, a hazard quotient of 1, or lifetime cancer risk of 10^{-6}, whichever occurs at a lower concentration) in water, air, fish tissue, and soil.

The Region III toxicologists use the table to screen sites not yet on the NPL, respond rapidly to citizen inquiries, and spot-check formal baseline risk assessments. The background materials provide the complete basis for all the calculations, with the intent of showing users exactly how the RBCs were developed. Simply put, RBCs are risk assessments run in reverse. For a single contaminant in a single medium, under standard default exposure assumptions, the RBC corresponds to the target risk or hazard quotient.

The calculations also have several important limitations. Specifically excluded from consideration are (1) transfers from soil to air and groundwater, and (2) cumulative risk from multiple contaminants or media. Also, the toxicity information in the table has been assembled by hand, and (despite extensive checking and years of use) may contain errors. It's advisable to cross-check before relying on any RfDs or CPSs in the table. If you find any errors, please

send me a note.

Lately, many callers have asked whether the risk-based concentrations can be used as valid no-action levels or cleanup levels, especially for soils.. The answer is a bit complex. First, it is important to realize that the RBC table does not constitute regulation or guidance, and should not be viewed as a substitute for a site-specific risk assessment. For sites where:

1. A single medium is contaminated;

2. A single contaminant contributes nearly all of the health risk;

3. Volatilization or leaching of that contaminant from soil is expected not to be significant;

4. The exposure scenarios used in the RBC table are appropriate for the site;

5. The fixed risk levels used in the RBC table are appropriate for the site; and

6. Risk to ecological receptors is expected not to be significant;

the risk-based concentrations would probably be protective as no-action levels or cleanup goals. However, to the extent that a site deviates from this description, as most do, the RBCs would not necessarily be appropriate.

To summarize, the table should generally not be used to (1) set cleanup or no-action levels at CERCLA or RCRA Corrective Action sites, (2) substitute for EPA guidance for preparing baseline risk assessments, or (3) determine if a waste is hazardous under RCRA.

This issue of the RBC table includes new toxicity constants and media concentrations, which are marked on the table in underlined boldface print.

I get many calls about the RBC table, but I'm often unavailable to answer the phone. Many of you have the same problem, so we play a lot of "phone tag". It's usually easier and more effective to fax me (at 215-597-9890) with your technical questions and concerns, and for me to respond by return fax. Of course, if you don't have access to a fax machine, I will also continue to respond to voice mail messages.

Attachment

Risk-Based Concentration Table
Background Information

General: Separate carcinogenic and non-carcinogenic risk-based concentrations were calculated for each compound for each pathway. The concentration in the table is the lower of the two, rounded to two significant figures. The following terms and values were used in the calculations:

Exposure variables	Value	Name
1-General:		
Carcinogenic potency slope oral (risk per mg/kg/d):	*	CPSo
Carcinogenic potency slope inhaled (risk per mg/kg/d):	*	CPSi
Reference dose oral (mg/kg/d):	*	RfDo
Reference dose inhaled (mg/kg/d):	*	RfDi
Target cancer risk:	1e-06	TR
Target hazard quotient:	1	THQ
Body weight, adult (kg):	70	BWa
Body weight, age 1-6 (kg):	15	BWc
Averaging time carcinogens (d):	25550	ATc
Averaging time non-carcinogens (d):	ED*365	ATn
Inhalation, adult (m3/d):	20	IRAa
Inhalation, child (m3/d):	12	IRAc
Inhalation factor, age-adjusted (m3-y/kg-d):	11.66	IFAadj
Tap water ingestion, adult (L/d):	2	IRWa
Tap water ingestion, age 1-6 (L/d):	1	IRWc
Tap water ingestion factor, age-adjusted (L-y/kg-d):	1.09	IFWadj
Fish ingestion (g/d):	54	IRF
Soil ingestion, adult (mg/d):	100	IRSa
Soil ingestion, age 1-6 (mg/d):	200	IRSc
Soil ingestion factor, age adjusted (mg-y/kg-d):	114.29	IFSadj
2-Residential:		
Exposure frequency (d/y):	350	EFr
Exposure duration, total (y):	30	EDtot

Exposure variables	Value	Name
Exposure duration, age 1-6 (y):	6	EDc
Volatilization factor (L/m3):	0.5	VF
3-Occupational:		
Exposure frequency (d/y):	250	EFo
Exposure duration (y):	25	EDo
* = Contaminant-specific toxicity parameters		

The priority among sources of toxicological constants was as follows: (1) IRIS, (2) HEAST, (3) HEAST alternative method, (4) EPA Superfund Health Risk Technical Support Center, (5) withdrawn from IRIS or HEAST, and (6) other EPA documents. Each source was used only if numbers from higher-priority sources were unavailable. The EPA Superfund Health Risk Technical Support Center, part of the Chemical Mixtures Branch of ECAO-Cincinnati, develops provisional RfDs and CPSs on request for contaminants not in IRIS or HEAST. These provisional values are labeled "e = EPA-ECAO provisional" in the table. It is possible they may be obsolete. If one of the "e" constants is important to a Superfund risk assessment, consider requesting, through a Regional risk assessor, a new provisional value.

Algorithms:

1. Age-adjusted factors: Because contact rates with tap water, ambient air, and residential soil are different for children and adults, carcinogenic risks during the first 30 years of life were calculated using age-adjusted factors. These factors approximated the integrated exposure from birth until age 30 by combining contact rates, body weights, and exposure durations for two age groups - small children and adults. The age-adjusted factor for soil was obtained from RAGS IB; the others were developed by analogy.

a. Air inhalation ($[m^3 \cdot y]/[kg \cdot d]$):

$$IFAadj = \frac{EDc \cdot IRAc}{BWc} + \frac{(EDtot - EDc) \cdot IRAa}{BWa}$$

b. Tap water ingestion ($[L \cdot y]/[kg \cdot d]$):

$$IFWadj = \frac{EDc \cdot IRWc}{BWc} + \frac{(EDtot - EDc) \cdot IRWa}{BWa}$$

c. Soil ingestion ([mg· y]/[kg· d]):

$$IFSadj = \frac{EDc \cdot IRSc}{BWc} + \frac{(EDtot - EDc) \cdot IRSa}{BWa}$$

2. Residential water use (μg/L). Volatilization terms were calculated only for compounds with "****" in the "VOC" column. Compounds having a Henry's Law constant greater than 10^{-5} were considered volatile. The list may be incomplete, but is unlikely to include false positives. The equations and the volatilization factor (VF, above) were obtained from RAGS IB. Oral potency slopes and reference doses were used for both oral and inhaled exposures for volatile compounds lacking inhalation values. Inhaled potency slopes were substituted for unavailable oral potency slopes only for volatile compounds; inhaled RfDs were substituted for unavailable oral RfDs for both volatile and non-volatile compounds.

a. Carcinogens: Calculations were based on combined childhood and adult exposure.

$$\frac{TR \cdot ATc \cdot 1000 \frac{\mu g}{mg}}{EFr \cdot ([VF \cdot IFAadj \cdot CPSi] + [IFWadj \cdot CPSo])}$$

b. Non-carcinogens: Calculations were based on adult exposure.

$$\frac{THQ \cdot BWa \cdot ATn \cdot 1000 \frac{\mu g}{mg}}{EFr \cdot EDtot \cdot \left(\frac{VF \cdot IRAa}{RfDi} + \frac{IRWa}{RfDo}\right)}$$

3. Air (μg/m³). Oral potency slopes and references were used where inhalation values were not available.

a. Carcinogens: Calculations were based on combined childhood and adult exposure.

$$\frac{TR \cdot ATc \cdot 1000 \frac{\mu g}{mg}}{EFr \cdot IFAadj \cdot CPSi}$$

b. Non-carcinogens: Calculations were based on adult exposure.

$$\frac{THQ \cdot RfDi \cdot BWa \cdot ATn \cdot 1000 \frac{\mu g}{mg}}{EFr \cdot EDtot \cdot IRAa}$$

4. Fish (mg/kg):

a. Carcinogens: Calculations were based on adult exposure.

$$\frac{TR \cdot BWa \cdot ATc}{EFr \cdot EDtot \cdot \frac{IRF}{1000 \frac{g}{kg}} \cdot CPSo}$$

b. Non-carcinogens: Calculations were based on adult exposure.

$$\frac{THQ \cdot RfDo \cdot BWa \cdot ATn}{EFr \cdot EDtot \cdot \frac{IRF}{1000 \frac{g}{kg}}}$$

5. Soil commercial/industrial (mg/kg): The default exposure assumption that only 50% of incidental soil ingestion occurs at work has been omitted. Calculations were based on adult occupational exposure.

a. Carcinogens:

$$\frac{TR \cdot BWa \cdot ATc}{EFo \cdot EDo \cdot \frac{IRSa}{10^6 \frac{mg}{kg}} \cdot CPSo}$$

b. Non-carcinogens:

$$\frac{THQ \cdot RfDo \cdot BWa \cdot ATn}{EFo \cdot EDo \cdot \frac{IRSa}{10^6 \frac{mg}{kg}}}$$

6. Soil residential (mg/kg):

a. Carcinogens: Calculations were based on combined childhood and adult exposure.

$$\frac{TR \cdot ATc}{EFr \cdot \frac{IFSadj}{10^6 \frac{mg}{kg}} \cdot CPSo}$$

b. Non-carcinogens: Calculations were based on childhood exposure only.

$$\frac{THQ \cdot RfDo \cdot BWc \cdot ATn}{EFr \cdot EDc \cdot \frac{IRSc}{10^6 \frac{mg}{kg}}}$$

EPA Region III Risk-Based Concentrations: R.L. Smith (11/08/04)

Sources: I=IRIS h=HEAST a=HEAST alt. w=Withdrawn from IRIS or HEAST e=EPA-ECAO provisional o=Other EPA documents

Basis of RBC: c=carcinogenic effects n=noncarcinogenic effects.

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Acephate	30560191	4.00E-03 I		8.70E-03 I			7.7 c	0.72 c	0.36 c	330 c	73 c
Acetaldehyde	75070		2.57E-03 I		7.70E-03 I		94 n	0.81 c			
Acetochlor	34256821	2.00E-02 I					730 n	73 n	27 n	20000 n	1600 n
Acetone	67641	1.00E-01 I					3700 n	370 n	140 n	100000 n	7800 n
Acetone cyanohydrin	75865	7.00E-02 h	2.86E-03 a				2600 n	10 n	95 n	72000 n	5500 n
Acetonitrile	75078	6.00E-03 I	1.43E-02 a				220 n	52 n	8.1 n	6100 n	470 n
Acetophenone	98862	1.00E-01 I	5.71E-06 w			•••	0.042 n	0.021 n	140 n	100000 n	7800 n
Acifluorfen	62476599	1.30E-02 I					470 n	47 n	18 n	13000 n	1000 n
Acrolein	107028	2.00E-02 h	5.71E-06 I				730 n	0.021 n	27 n	20000 n	1600 n
Acrylamide	79061	2.00E-04 I		4.50E+00 I	4.55E+00 I		0.015 c	0.0014 c	0.0007 c	0.64 c	0.14 c
Acrylic acid	79107	5.00E-01 I	1.00E-03 I				18000 n	3.7 n	680 n	510000 n	39000 n
Acrylonitrile	107131	1.00E-03 h	5.71E-04 I	5.40E-01 I	2.38E-01 I		0.12 c	0.026 c	0.0058 c	5.3 c	1.2 c
Alachlor	15972608	1.00E-02 I		8.00E-02 h			0.84 c	0.078 c	0.039 c	36 c	8 c
Alar	1596845	1.50E-01 I					5500 n	550 n	200 n	150000 n	12000 n
Aldicarb	116063	1.00E-03 I					37 n	3.7 n	1.4 n	1000 n	78 n
Aldicarb sulfone	1646884	1.00E-03 I					37 n	3.7 n	1.4 n	1000 n	78 n
Aldrin	309002	3.00E-05 I		1.70E+01 I	1.71E+01 I		0.004 c	0.00037 c	0.00019 c	0.17 c	0.038 c
Ally	74223646	2.50E-01 I					9100 n	910 n	340 n	260000 n	20000 n
Allyl alcohol	107186	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
Allyl chloride	107051	5.00E-02 w	2.86E-04 I				1800 n	1 n	68 n	51000 n	3900 n
Aluminum	7429905	1.00E+00 a					37000 n	3700 n	1400 n	1000000 n	78000 n
Aluminum phosphide	20859738	4.00E-04 I					15 n	1.5 n	0.54 n	410 n	31 n
Amdro	67485294	3.00E-04 I					11 n	1.1 n	0.41 n	310 n	23 n
Ametryn	834128	9.00E-03 I					330 n	33 n	12 n	9200 n	700 n
m-Aminophenol	591275	7.00E-02 h					2600 n	260 n	95 n	72000 n	5500 n
4-Aminopyridine	504245	2.00E-05 h					0.73 n	0.073 n	0.027 n	20 n	1.6 n
Amitraz	33089611	2.50E-03 I					91 n	9.1 n	3.4 n	2600 n	200 n
Ammonia	7664417		2.86E-02 I				1000 n	100 n			
Ammonium sulfamate	7773060	2.00E-01 I					7300 n	730 n	270 n	200000 n	16000 n
Aniline	62533		2.86E-04 I	5.70E-03 I			10 n	1 n	0.55 c	500 c	110 c
Antimony and compounds	7440360	4.00E-04 I					15 n	1.5 n	0.54 n	410 n	31 n
Antimony pentoxide	1314609	5.00E-04 h					18 n	1.8 n	0.68 n	510 n	39 n
Antimony potassium tartrate	304610	9.00E-04 h					33 n	3.3 n	1.2 n	920 n	70 n
Antimony tetroxide	1332816	4.00E-04 h					15 n	1.5 n	0.54 n	410 n	31 n
Antimony trioxide	1309644	4.00E-04 h					15 n	1.5 n	0.54 n	410 n	31 n
Apollo	74115245	1.30E-02 I					470 n	47 n	18 n	13000 n	1000 n
Aramite	140578	5.00E-02 h		2.50E-02 I	2.49E-02 I		2.7 c	0.25 c	0.13 c	110 c	26 c
Arsenic	7440382	3.00E-04 I					11 n	1.1 n	0.41 n	310 n	23 n
Arsenic (as carcinogen)	7440382			1.75E+00 I	1.51E+01 I		0.038 c	0.00041 c	0.0018 c	1.6 c	0.37 c
Arsine	7784421		1.43E-05 I				0.52 n	0.052 n			
Azinphos	76578148	9.00E-03 I					330 n	33 n	12 n	9200 n	700 n
							1800 n	180 n	68 n	51000 n	3900 n

Sources: I=IRIS h=HEAST a=HEAST alt. w=Withdrawn from IRIS or HEAST e=EPA-ECAO provisional o=Other EPA documents *Basis of RBC: c=carcinogenic effects n=noncarcinogenic effects.*

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Atrazine	1912249	3.50E-02 I		2.22E-01 h			0.3 c	0.028 c	0.014 c	13 c	2.9 c
Avermectin B1	65195553	4.00E-04 I					15 n	1.5 n	0.54 n	410 n	31 n
Azobenzene	103333			1.10E-01 I	1.08E-01 I		0.61 c	0.058 c	0.029 c	26 c	5.8 c
Barium and compounds	7440393	7.00E-02 I	1.43E-04 e				2600 n	0.52 n	95 n	72000 n	5500 n
Baygon	114261	4.00E-03 I					150 n	15 n	5.4 n	4100 n	310 n
Bayleton	43121433	3.00E-02 I					1100 n	110 n	41 n	31000 n	2300 n
Baythroid	68359375	2.50E-02 I					910 n	91 n	34 n	26000 n	2000 n
Benefin	1861401	3.00E-01 I					11000 n	1100 n	410 n	310000 n	23000 n
Benomyl	17804352	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n
Bentazon	25057890	2.50E-03 I					91 n	9.1 n	3.4 n	2600 n	200 n
Benzaldehyde	100527	1.00E-01 I				•••	610 n	370 n	140 n	100000 n	7800 n
Benzene	71432		1.71E-03 e	2.90E-02 I	2.90E-02 I	•••	0.36 c	0.22 c	0.11 c	99 c	22 c
Benzenethiol	108985	1.00E-05 h					0.37 n	0.037 n	0.014 n	10 n	0.78 n
Benzidine	92875	3.00E-03 I		2.30E+02 I	2.35E+02 I		0.00029 c	0.000027 c	0.000014 c	0.012 c	0.0028 c
Benzoic acid	65850	4.00E+00 I					150000 n	15000 n	5400 n	1000000 n	310000 n
Benzotrichloride	98077			1.30E+01 I			0.0052 c	0.00048 c	0.00024 c	0.22 c	0.049 c
Benzyl alcohol	100516	3.00E-01 h					11000 n	1100 n	410 n	310000 n	23000 n
Benzyl chloride	100447			1.70E-01 I		•••	0.062 c	0.037 c	0.019 c	17 c	3.8 c
Beryllium and compounds	7440417	5.00E-03 I		4.30E+00 I	8.40E+00 I		0.016 c	0.00075 c	0.00073 c	0.67 c	0.15 c
Bidrin	141662	1.00E-04 I					3.7 n	0.37 n	0.14 n	100 n	7.8 n
Biphenthrin (Talstar)	82657043	1.50E-02 I					550 n	55 n	20 n	15000 n	1200 n
1,1-Biphenyl	92524	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n
Bis(2-chloroisopropyl)ether	39638329	4.00E-02 I		7.00E-02 h	3.50E-02 h	•••	0.26 c	0.18 c	0.045 c	41 c	9.1 c
Bis(chloromethyl)ether	542881			2.20E+02 I	2.17E+02 I	•••	0.000049 c	0.000029 c	0.000014 c	0.013 c	0.0029 c
Bis(2-chloro-1-methylethyl)ether				7.00E-02 w	7.00E-02 w		0.96 c	0.089 c	0.045 c	41 c	9.1 c
Bis(2-ethylhexyl)phthalate (DEHP)	117817	2.00E-02 I		1.40E-02 I			4.8 c	0.45 c	0.23 c	200 c	46 c
Bis(chloroethyl)ether	111444			1.10E+00 I	1.16E+00 I	•••	0.0092 c	0.0054 c	0.0029 c	2.6 c	0.58 c
Bisphenol A	80057	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n
Boron (and borates)	7440428	9.00E-02 I	5.71E-03 h				3300 n	21 n	120 n	92000 n	7000 n
Boron trifluoride	7637072		2.00E-04 h				7.3 n	0.73 n			
Bromodichloromethane	75274	2.00E-02 I		6.20E-02 I		•••	0.17 c	0.1 c	0.051 c	46 c	10 c
Bromoethene	593602				1.10E-01 h	•••	0.096 c	0.057 c			
Bromoform (tribromomethane)	75252	2.00E-02 I		7.90E-03 I	3.85E-03 I	•••	2.4 c	1.6 c	0.4 c	360 c	81 c
Bromomethane	74839	1.40E-03 I	1.43E-03 I			•••	8.7 n	5.2 n	1.9 n	1400 n	110 n
4-Bromophenyl phenyl ether	101553	5.80E-02 e					2100 n	210 n	78 n	59000 n	4500 n
Bromophos	2104963	5.00E-03 h					180 n	18 n	6.8 n	5100 n	390 n
Bromoxynil	1689845	2.00E-02 I					730 n	73 n	27 n	20000 n	1600 n
Bromoxynil octanoate	1689992	2.00E-02 I					730 n	73 n	27 n	20000 n	1600 n
1,3-Butadiene	106990				9.80E-01 I	•••	0.011 c	0.0064 c			
1-Butanol	71363	1.00E-01 I					3700 n	370 n	140 n	100000 n	7800 n
Butyl benzyl phthalate	85687	2.00E-01 I					7300 n	730 n	270 n	200000 n	16000 n

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg·d/mg	CPSi kg·d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
sec-Butylbenzene	135988	1.00E-02 o				•••	61 n	37 n	14 n	10000 n	780 n
tert-Butylbenzene	104518	1.00E-02 o				•••	61 n	37 n	14 n	10000 n	780 n
Butylphthalyl butylglycolate	85701	1.00E+00 I					37000 n	3700 n	1400 n	1000000 n	78000 n
Cacodylic acid	75605	3.00E-03 h					110 n	11 n	4.1 n	3100 n	230 n
Cadmium and compounds	7440439	5.00E-04 I			6.30E+00 I		18 n	0.00099 c	0.68 n	510 n	39 n
Caprolactam	105602	5.00E-01 I					18000 n	1800 n	680 n	510000 n	39000 n
Captafol	2425061	2.00E-03 I		8.60E-03 h			7.8 c	0.73 c	0.37 c	330 c	74 c
Captan	133062	1.30E-01 I		3.50E-03 h			19 c	1.8 c	0.9 c	820 c	180 c
Carbaryl	63252	1.00E-01 I					3700 n	370 n	140 n	100000 n	7800 n
Carbazole	86748			2.00E-02 h			3.4 c	0.31 c	0.16 c	140 c	32 c
Carbofuran	1563662	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
Carbon disulfide	75150	1.00E-01 I	2.86E-03 h			•••	21 n	10 n	140 n	100000 n	7800 n
Carbon tetrachloride	56235	7.00E-04 I	5.71E-04 e	1.30E-01 I	5.25E-02 I	•••	0.16 c	0.12 c	0.024 c	22 c	4.9 c
Carbosulfan	55285148	1.00E-02 I					370 n	37 n	14 n	10000 n	780 n
Carboxin	5234684	1.00E-01 I					3700 n	370 n	140 n	100000 n	7800 n
Chloral	75876	2.00E-03 I					73 n	7.3 n	2.7 n	2000 n	160 n
Chloramben	133904	1.50E-02 I					550 n	55 n	20 n	15000 n	1200 n
Chloranil	118752			4.03E-01 h			0.17 c	0.016 c	0.0078 c	7.1 c	1.6 c
Chlordane	57749	6.00E-05 I		1.30E+00 I	1.29E+00 I		0.052 c	0.0049 c	0.0024 c	2.2 c	0.49 c
Chlorimuron-ethyl	90982324	2.00E-02 I					730 n	73 n	27 n	20000 n	1600 n
Chlorine	7782505	1.00E-01 I					3700 n	370 n	140 n	100000 n	7800 n
Chlorine dioxide	10049044		5.71E-05 I				2.1 n	0.21 n			
Chloroacetaldehyde	107200	6.90E-03 o					250 n	25 n	9.3 n	7100 n	540 n
Chloroacetic acid	79118	2.00E-03 h					73 n	7.3 n	2.7 n	2000 n	160 n
2-Chloroacetophenone	532274		8.57E-06 I				0.31 n	0.031 n			
4-Chloroaniline	106478	4.00E-03 I					150 n	15 n	5.4 n	4100 n	310 n
Chlorobenzene	108907	2.00E-02 I	5.71E-03 e			•••	39 n	21 n	27 n	20000 n	1600 n
Chlorobenzilate	510156	2.00E-02 I		2.70E-01 h	2.70E-01 h		0.25 c	0.023 c	0.012 c	11 c	2.4 c
p-Chlorobenzoic acid	74113	2.00E-01 h					7300 n	730 n	270 n	200000 n	16000 n
4-Chlorobenzotrifluoride	98566	2.00E-02 h					730 n	73 n	27 n	20000 n	1600 n
2-Chloro-1,3-butadiene	126998	2.00E-02 e	2.00E-03 h			•••	14 n	7.3 n	27 n	20000 n	1600 n
1-Chlorobutane	109693	4.00E-01 h				•••	2400 n	1500 n	540 n	410000 n	31000 n
Chlorodifluoromethane	75456		1.43E+01 I			•••	87000 n	52000 n			
Chloroethane	75003	4.00E-01 e	2.86E+00 I			•••	8600 n	10000 n	540 n	410000 n	31000 n
2-Chloroethyl vinyl ether	110758	2.50E-02 o				•••	150 n	91 n	34 n	26000 n	2000 n
Chloroform	67663	1.00E-02 I		6.10E-03 I	8.05E-02 I	•••	0.15 c	0.078 c	0.52 c	470 c	100 c
Chloromethane	74873			1.30E-02 h	6.30E-03 h	•••	1.4 c	0.99 c	0.24 c	220 c	49 c
4-Chloro-2,2-methylaniline hydrochloride	3165933			4.60E-01 h			0.15 c	0.014 c	0.0069 c	6.2 c	1.4 c
4-Chloro-2-methylaniline	95692			5.80E-01 h			0.12 c	0.011 c	0.0054 c	4.9 c	1.1 c
beta-Chloronaphthalene	91587	8.00E-02 I					2900 n	290 n	110 n	82000 n	6300 n
o-Chloronitrobenzene	88733			2.50E-02 h		•••	0.42 c	0.25 c	0.13 c	110 c	26 c
				1.80E-02 h		•••	0.59 c	0.35 c	0.18 c	160 c	35 c

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Chlorophenol	95578	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
Chloropropane	75296		2.86E-02 h			•••	170 n	100 h			
orothalonil	1897456	1.50E-02 I		1.10E-02 h			6.1 c	0.57 c	0.29 c	260 c	58 c
Chlorotoluene	95498	2.00E-02 I				•••	120 n	73 n	27 n	20000 n	1600 n
lorpropham	101213	2.00E-01 I					7300 n	730 n	270 n	200000 n	16000 n
lorpyrifos	2921882	3.00E-03 I					110 n	11 n	4.1 n	3100 n	230 n
lorpyrifos-methyl	5598130	1.00E-02 h					370 n	37 n	14 n	10000 n	780 n
orsulfuron	64902723	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n
orthiophos	60238564	8.00E-04 h					29 n	2.9 n	1.1 n	820 n	63 n
omium III and compounds	16065831	1.00E+00 I	5.71E-07 w				37000 n	0.0021 n	1400 n	1000000 n	78000 n
omium VI and compounds	7440473	5.00E-03 I			4.20E+01 I		180 n	0.00015 c	6.8 n	5100 n	390 n
l tar	8001589				2.20E+00 w			0.0028 c			
balt	7440484	6.00E-02 e					2200 n	220 n	81 n	61000 n	4700 n
e Oven Emissions	8007452				2.17E+00 I			0.0029 c			
per and compounds	7440508	3.71E-02 h					1400 n	140 n	50 n	38000 n	2900 n
tonaldehyde	123739	1.00E-02 w		1.90E+00 h	1.90E+00 w		0.035 c	0.0033 c	0.0017 c	1.5 c	0.34 c
nene	98828	4.00E-02 I	2.57E-03 h				1500 n	9.4 n	54 h	41000 n	3100 n
nides:											
rium cyanide	542621	1.00E-01 w					3700 n	370 n	140 n	100000 n	7800 n
lcium cyanide	592018	4.00E-02 I					1500 n	150 n	54 n	41000 n	3100 n
pper cyanide	544923	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
anazine	21725462	2.00E-03 h		8.40E-01 h			0.08 c	0.0075 c	0.0038 c	3.4 c	0.76 c
anogen	460195	4.00E-02 I					1500 n	150 n	54 n	41000 n	3100 n
anogen bromide	506683	9.00E-02 I					3300 n	330 n	120 n	92000 n	7000 n
anogen chloride	506774	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n
ee cyanide	57125	2.00E-02 I					730 n	73 n	27 n	20000 n	1600 n
drogen cyanide	74908	2.00E-02 I	8.57E-04 I				730 n	3.1 n	27 n	20000 n	1600 n
tassium cyanide	151508	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n
tassium silver cyanide	506616	2.00E-01 I					7300 n	730 n	270 n	200000 n	16000 n
lver cyanide	506649	1.00E-01 I					3700 n	370 n	140 n	100000 n	7800 n
dium cyanide	143339	4.00E-02 I					1500 n	150 n	54 n	41000 n	3100 n
nc cyanide	557211	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n
lohexanone	108941	5.00E+00 I				•••	30000 n	18000 n	6800 n	1000000 n	390000 n
lohexlamine	108918	2.00E-01 I					7300 n	730 n	270 n	200000 n	16000 n
alothrin/Karate	68085858	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
ermethrin	52315078	1.00E-02 I					370 n	37 n	14 n	10000 n	780 n
omazine	66215278	7.50E-03 I					270 n	27 n	10 n	7700 n	590 n
thal	1861321	1.00E-02 I					370 n	37 n	14 n	10000 n	780 n
apon	75990	3.00E-02 I					1100 n	110 n	41 n	31000 n	2300 n
itol	39515418	2.50E-02 I					210 n	21 n	34 n	26000 n	2000 n
D	72548			2.40E-01 I			0.28 c	0.026 c	0.013 c	12 c	2.7 c

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DDT	50293	5.00E-04 I		3.40E-01 I	3.40E-01 I		0.2 c	0.018 c	0.0093 c	8.4 c	1.9 c
Decabromodiphenyl ether	1163195	1.00E-02 I				•••	61 n	37 n	14 n	10000 n	780 n
Demeton	8065483	4.00E-05 I					1.5 n	0.15 n	0.054 n	41 n	3.1 n
Diallate	2303164			6.10E-02 h		•••	0.17 c	0.1 c	0.052 c	47 c	10 c
Diazinon	333415	9.00E-04 h					33 n	3.3 n	1.2 n	920 n	70 n
Dibenzofuran	132649	4.00E-03 a					150 n	15 n	5.4 n	4100 n	310 n
1,4-Dibromobenzene	106376	1.00E-02 I				•••	61 n	37 n	14 n	10000 n	780 n
Dibromochloromethane	124481	2.00E-02 I		8.40E-02 I		•••	0.13 c	0.075 c	0.038 c	34 c	7.6 c
1,2-Dibromo-3-chloropropane	96128		5.71E-05 I	1.40E+00 h	2.42E-03 h	•••	0.048 c	0.21 n	0.0023 c	2 c	0.46 c
1,2-Dibromoethane	106934		5.71E-05 h	8.50E+01 I	7.70E-01 I	•••	0.00075 c	0.0081 c	0.000037 c	0.034 c	0.0075 c
Dibutyl phthalate	84742	1.00E-01 I					3700 n	370 n	140 n	100000 n	7800 n
Dicamba	1918009	3.00E-02 I					1100 n	110 n	41 n	31000 n	2300 n
1,2-Dichlorobenzene	95501	9.00E-02 I	5.71E-02 a			•••	370 n	210 n	120 n	92000 n	7000 n
1,3-Dichlorobenzene	541731	8.90E-02 o				•••	540 n	320 n	120 n	91000 n	7000 n
1,4-Dichlorobenzene	106467		2.29E-01 I	2.40E-02 h		•••	0.44 c	0.26 c	0.13 c	120 c	27 c
3,3'-Dichlorobenzidine	91941			4.50E-01 I			0.15 c	0.014 a	0.007 c	6.4 c	1.4 c
1,4-Dichloro-2-butene	764410				9.30E+00 h	•••	0.0011 c	0.00067 c			
Dichlorodifluoromethane	75718	2.00E-01 I	5.71E-02 a			•••	390 n	210 n	270 n	200000 n	16000 n
1,1-Dichloroethane	75343	1.00E-01 h	1.43E-01 a			•••	810 n	520 n	140 n	100000 n	7800 n
1,2-Dichloroethane (EDC)	107062		2.86E-03 a	9.10E-02 I	9.10E-02 I	•••	0.12 c	0.069 c	0.035 c	31 c	7 c
1,1-Dichloroethylene	75354	9.00E-03 I		6.00E-01 I	1.75E-01 I	•••	0.044 c	0.036 c	0.0053 c	4.8 c	1.1 c
1,2-Dichloroethylene (cis)	156592	1.00E-02 h				•••	61 n	37 n	14 n	10000 n	780 n
1,2-Dichloroethylene (trans)	156605	2.00E-02 I				•••	120 n	73 n	27 n	20000 n	1600 n
1,2-Dichloroethylene (mixture)	540590	9.00E-03 h				•••	55 n	33 n	12 n	9200 n	700 n
2,4-Dichlorophenol	120832	3.00E-03 I					110 n	11 n	4.1 n	3100 n	230 n
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94757	1.00E-02 I				•••	61 n	37 n	14 n	10000 n	780 n
4-(2,4-Dichlorophenoxy)butyric Acid	94826	8.00E-03 I					290 n	29 n	11 n	8200 n	630 n
1,2-Dichloropropane	78875		1.14E-03 I	6.80E-02 h		•••	0.16 c	0.092 c	0.046 c	42 c	9.4 c
2,3-Dichloropropanol	616239	3.00E-03 I					110 n	11 n	4.1 n	3100 n	230 n
1,3-Dichloropropene	542756	3.00E-04 I	5.71E-03 I	1.75E-01 h	1.30E-01 h	•••	0.077 c	0.048 c	0.018 c	16 c	3.7 c
Dichlorvos	62737	5.00E-04 I	1.43E-04 I	2.90E-01 I			0.23 c	0.022 c	0.011 c	9.9 c	2.2 c
Dicofol	115322			4.40E-01 w			0.15 c	0.014 c	0.0072 c	6.5 c	1.5 c
Dicyclopentadiene	77736	3.00E-02 h	5.71E-05 a			•••	0.42 n	0.21 n	41 n	31000 n	2300 n
Dieldrin	60571	5.00E-05 I		1.60E+01 I	1.61E+01 I		0.0042 c	0.00039 c	0.0002 c	0.18 c	0.04 c
Diesel emissions			1.43E-03 I				52 n	5.2 n			
Diethyl phthalate	84662	8.00E-01 I					29000 n	2900 n	1100 n	820000 n	63000 n
Diethylene glycol, monobutyl ether	112345		5.71E-03 h				210 n	21 n			
Diethylene glycol, monoethyl ether	111900	2.00E+00 h					73000 n	7300 n	2700 n	1000000 n	160000 n
Diethylformamide	617845	1.10E-02 h					400 n	40 n	15 n	11000 n	860 n
Di(2-ethylhexyl)adipate	103231	6.00E-01 I		1.20E-03 I			56 c	5.2 c	2.6 c	2400 c	530 c
Diethylstilbestrol	56531			4.70E+03 h			0.000014 c	1.30E-06 c	6.70E-07 c	0.00061 c	0.00014 c

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Diflubenzuron	35367385	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
1,1-Difluoroethane	75376		1.14E+01 *i*			***	69000 *n*	42000 *n*			
Diisopropyl methylphosphonate (DIMP)	1445756	8.00E-02 *i*					2900 *n*	290 *n*	110 *n*	82000 *n*	6300 *n*
Dimethipin	55290647	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Dimethoate	60515	2.00E-04 *i*					7.3 *n*	0.73 *n*	0.27 *n*	200 *n*	16 *n*
3,3'-Dimethoxybenzidine	119904			1.40E-02 *h*			4.8 *c*	0.45 *c*	0.23 *c*	200 *c*	46 *c*
Dimethyl phthalate	131113	1.00E+01 *h*					370000 *n*	37000 *n*	14000 *n*	1000000 *n*	780000 *n*
Dimethyl terephthalate	120616	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Dimethylamine	124403		5.71E-06 *w*				0.21 *n*	0.021 *n*			
3,4-Dimethylaniline hydrochloride	21436964			5.80E-01 *h*			0.12 *c*	0.011 *c*	0.0054 *c*	4.9 *c*	1.1 *c*
3,4-Dimethylaniline	95681			7.50E-01 *h*			0.09 *c*	0.0083 *c*	0.0042 *c*	3.8 *c*	0.85 *c*
3,N-Dimethylaniline	121697	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
3,3'-Dimethylbenzidine	119937			9.20E+00 *h*			0.0073 *c*	0.00068 *c*	0.00034 *c*	0.31 *c*	0.069 *c*
3,N-Dimethylformamide	68122	1.00E-01 *h*	8.57E-03 *i*				3700 *n*	31 *n*	140 *n*	100000 *n*	7800 *n*
1,1-Dimethylhydrazine	57147			2.60E+00 *w*	3.50E+00 *w*		0.026 *c*	0.0018 *c*	0.0012 *c*	1.1 *c*	0.25 *c*
1,2-Dimethylhydrazine	540738			3.70E+01 *w*	3.70E+01 *w*		0.0018 *c*	0.00017 *c*	0.000085 *c*	0.077 *c*	0.017 *c*
2,4-Dimethylphenol	105679	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
2,6-Dimethylphenol	576261	6.00E-04 *i*					22 *n*	2.2 *n*	0.81 *n*	610 *n*	47 *n*
3,4-Dimethylphenol	95658	1.00E-03 *i*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
1,2-Dinitrobenzene	528290	4.00E-04 *h*					15 *n*	1.5 *n*	0.54 *n*	410 *n*	31 *n*
1,3-Dinitrobenzene	99650	1.00E-04 *i*					3.7 *n*	0.37 *n*	0.14 *n*	100 *n*	7.8 *n*
1,4-Dinitrobenzene	100254	4.00E-04 *h*					15 *n*	1.5 *n*	0.54 *n*	410 *n*	31 *n*
4,6-Dinitro-o-cyclohexyl phenol	131895	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
2,4-Dinitrophenol	51285	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Dinitrotoluene mixture				6.80E-01 *i*			0.099 *c*	0.0092 *c*	0.0046 *c*	4.2 *c*	0.94 *c*
2,4-Dinitrotoluene	121142	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
2,6-Dinitrotoluene	606202	1.00E-03 *h*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
Dinoseb	88857	1.00E-03 *i*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
Di-n-Octyl phthalate	117840	2.00E-02 *h*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
1,4-Dioxane	123911			1.10E-02 *i*			6.1 *c*	0.57 *c*	0.29 *c*	260 *c*	58 *c*
Diphenamid	957517	3.00E-02 *i*					1100 *n*	110 *n*	41 *n*	31000 *n*	2300 *n*
Diphenylamine	122394	2.50E-02 *i*					910 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
1,2-Diphenylhydrazine	122667			8.00E-01 *i*	7.70E-01 *i*		0.084 *c*	0.0081 *c*	0.0039 *c*	3.6 *c*	0.8 *c*
Diquat	85007	2.20E-03 *i*					80 *n*	8 *n*	3 *n*	2200 *n*	170 *n*
Direct black 38	1937377			8.60E+00 *h*			0.0078 *c*	0.00073 *c*	0.00037 *c*	0.33 *c*	0.074 *c*
Direct blue 6	2602462			8.10E+00 *h*			0.0083 *c*	0.00077 *c*	0.00039 *c*	0.35 *c*	0.079 *c*
Direct brown 95	16071866			9.30E+00 *h*			0.0072 *c*	0.00067 *c*	0.00034 *c*	0.31 *c*	0.069 *c*
Disulfoton	298044	4.00E-05 *i*					1.5 *n*	0.15 *n*	0.054 *n*	41 *n*	3.1 *n*
1,4-Dithiane	505293	1.00E-02 *i*					370 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
Diuron	330541	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Iodine	2439103	4.00E-03 *i*					150 *n*	15 *n*	5.4 *n*	4100 *n*	310 *n*

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg·d/mg	CPSi kg·d/mg	V O C	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Endothall	145733	2.00E-02 i					730 n	73 n	27 n	20000 n	1600 n
Endrin	72208	3.00E-04 i					11 n	1.1 n	0.41 n	310 n	23 n
Epichlorohydrin	106898	2.00E-03 h	2.86E-04 i	9.90E-03 i	4.20E-03 i		6.8 c	1 n	0.32 c	290 c	65 c
1,2-Epoxybutane	106887		5.71E-03 i				210 n	21 n			
Ethephon (2-chloroethyl phosphonic acid)	16672870	5.00E-03 i					180 n	18 n	6.8 n	5100 n	390 n
Ethion	563122	5.00E-04 i					18 n	1.8 n	0.68 n	510 n	39 n
2-Ethoxyethanol acetate	111159	3.00E-01 a					11000 n	1100 n	410 n	310000 n	23000 n
2-Ethoxyethanol	110805	4.00E-01 h	5.71E-02 i				15000 n	210 n	540 n	410000 n	31000 n
Ethyl acrylate	140885			4.80E-02 h			1.4 c	0.13 c	0.066 c	60 c	13 c
EPTC (S-Ethyl dipropylthiocarbamate)	759944	2.50E-02 i					910 n	91 n	34 n	26000 n	2000 n
Ethyl ether	60297	2.00E-01 i				...	1200 n	730 n	270 n	200000 n	16000 n
Ethyl methacrylate	97632	9.00E-02 h					3300 n	330 n	120 n	92000 n	7000 n
Ethyl acetate	141786	9.00E-01 i					33000 n	3300 n	1200 n	920000 n	70000 n
Ethylbenzene	100414	1.00E-01 i	2.86E-01 i			...	1300 n	1000 n	140 n	100000 n	7800 n
Ethylene cyanohydrin	109784	3.00E-01 h					11000 n	1100 n	410 n	310000 n	23000 n
Ethylene diamine	107153	2.00E-02 h					730 n	73 n	27 n	20000 n	1600 n
Ethylene glycol	107211	2.00E+00 i					73000 n	7300 n	2700 n	1000000 n	160000 n
Ethylene glycol, monobutyl ether	111762		5.71E-03 h				210 n	21 n			
Ethylene oxide	75218			1.02E+00 h	3.50E-01 h		0.066 c	0.018 c	0.0031 c	2.8 c	0.63 c
Ethylene thiourea (ETU)	96457	8.00E-05 i		1.19E-01 h			0.57 c	0.053 c	0.027 c	24 c	5.4 c
Ethyl p-nitrophenyl phenylphosphorothioate	2104645	1.00E-05 i					0.37 n	0.037 n	0.014 n	10 n	0.78 n
Ethylnitrosourea	759739			1.40E+02 w			0.00048 c	0.000045 c	0.000023 c	0.02 c	0.0046 c
Ethylphthalyl ethyl glycolate	84720	3.00E+00 i					110000 n	11000 n	4100 n	1000000 n	230000 n
Express	10120	8.00E-03 i					290 n	29 n	11 n	8200 n	630 n
Fenamiphos	22224926	2.50E-04 i					9.1 n	0.91 n	0.34 n	260 n	20 n
Fluometuron	2164172	1.30E-02 i					470 n	47 n	18 n	13000 n	1000 n
Fluoride	7782414	6.00E-02 i					2200 n	220 n	81 n	61000 n	4700 n
Fluoridone	59756604	8.00E-02 i					2900 n	290 n	110 n	82000 n	6300 n
Flurprimidol	56425913	2.00E-02 i					730 n	73 n	27 n	20000 n	1600 n
Flutolanil	66332965	6.00E-02 i					2200 n	220 n	81 n	61000 n	4700 n
Fluvalinate	69409945	1.00E-02 i					370 n	37 n	14 n	10000 n	780 n
Folpet	133073	1.00E-01 i		3.50E-03 i			19 c	1.8 c	0.9 c	820 c	180 c
Fomesafen	72178020			1.90E-01 i			0.35 c	0.033 c	0.017 c	15 c	3.4 c
Fonofos	944229	2.00E-03 i					73 n	7.3 n	2.7 n	2000 n	160 n
Formaldehyde	50000	2.00E-01 i			4.55E-02 i		7300 n	0.14 c	270 n	200000 n	16000 n
Formic Acid	64186	2.00E+00 h					73000 n	7300 n	2700 n	1000000 n	160000 n
Fosetyl-al	39148248	3.00E+00 i					110000 n	11000 n	4100 n	1000000 n	230000 n
Furan	110009	1.00E-03 i					37 n	3.7 n	1.4 n	1000 n	78 n
Furazolidone	67458			3.80E+00 h			0.018 c	0.0016 c	0.00083 c	0.75 c	0.17 c
Furfural	98011	3.00E-03 i	1.43E-02 a				110 n	52 n	4.1 n	3100 n	230 n
	531828			5.00E+01 h			0.0013 c	0.00013 c	0.000063 c	0.057 c	0.013 c

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Contaminant	CAS	RfDo mg/kg/d		RfDi mg/kg/d		CPSo kg-d/mg		CPSi kg-d/mg		VOC	Tap water µg/L		Ambient air µg/m3		Fish mg/kg		Industrial soil mg/kg		Residential soil mg/kg	
Glufosinate-ammonium	77182822	4.00E-04	I								15	n	1.5	n	0.54	n	410	n	31	n
Glycidaldehyde	765344	4.00E-04	I	2.86E-04	h						15	n	1	n	0.54	n	410	n	31	n
Glyphosate	1071836	1.00E-01	I								3700	n	370	n	140	n	100000	n	7800	n
Haloxyfop-methyl	69806402	5.00E-05	I								1.8	n	0.18	n	0.068	n	51	n	3.9	n
Harmony	79277273	1.30E-02	I								470	n	47	n	18	n	13000	n	1000	n
HCH (alpha)	319846					6.30E+00	I	6.30E+00	I		0.011	c	0.00099	c	0.0005	c	0.45	c	0.1	c
HCH (beta)	319857					1.80E+00	I	1.80E+00	I		0.037	c	0.0035	c	0.0018	c	1.6	c	0.35	c
HCH (gamma) Lindane	58899	3.00E-04	I			1.30E+00	h				0.052	c	0.0048	c	0.0024	c	2.2	c	0.49	c
HCH-technical	608731					1.80E+00	I	1.79E+00	I		0.037	c	0.0035	c	0.0018	c	1.6	c	0.35	c
Heptachlor	76448	5.00E-04	I			4.50E+00	I	4.55E+00	I	***	0.0023	c	0.0014	c	0.0007	c	0.64	c	0.14	c
Heptachlor epoxide	1024573	1.30E-05	I			9.10E+00	I	9.10E+00	I	***	0.0012	c	0.00069	c	0.00035	c	0.31	c	0.07	c
Hexabromobenzene	87821	2.00E-03	I							***	12	n	7.3	n	2.7	n	2000	n	160	n
Hexachlorobenzene	118741	8.00E-04	I			1.60E+00	I	1.61E+00	I	***	0.0066	c	0.0039	c	0.002	c	1.8	c	0.4	c
Hexachlorobutadiene	87683	2.00E-04	h			7.80E-02	I	7.70E-02	I	***	0.14	c	0.081	c	0.04	c	37	c	8.2	c
Hexachlorocyclopentadiene	77474	7.00E-03	I	2.00E-05	h					***	0.15	n	0.073	n	9.5	n	7200	n	550	n
Hexachlorodibenzo-p-dioxin mixture	19408743					6.20E+03	I	4.55E+03	I		0.000011	c	1.40E-06	c	5.10E-07	c	0.00046	c	0.0001	c
Hexachloroethane	67721	1.00E-03	I			1.40E-02	I	1.40E-02	I	***	0.75	c	0.45	c	0.23	c	200	c	46	c
Hexachlorophene	70304	3.00E-04	I								11	n	1.1	n	0.41	n	310	n	23	n
Hexahydro-1,3,5-trinitro-1,3,5-triazine	121824	3.00E-03	I			1.10E-01	I				0.61	c	0.057	c	0.029	c	26	c	5.8	c
1,6-Hexamethylene diisocyanate	822060			2.86E-06	I						0.1	a	0.01	a						
n-Hexane	110543	6.00E-02	h	5.71E-02	I					***	350	n	210	n	81	n	61000	n	4700	n
Hexazinone	51235042	3.30E-02	I								1200	n	120	n	45	n	34000	n	2600	n
Hydrazine, hydrazine sulfate	302012					3.00E+00	I	1.71E+01	I		0.022	c	0.00037	c	0.0011	c	0.95	c	0.21	c
Hydrogen chloride	7647010			2.00E-03	I						73	n	7.3	n						
Hydrogen sulfide	7783064	3.00E-03	I	2.57E-04	I						110	n	0.94	n	4.1	n	3100	n	230	n
Hydroquinone	123319	4.00E-02	h								1500	n	150	n	54	n	41000	n	3100	n
Imazalil	35554440	1.30E-02	I								470	n	47	n	18	n	13000	n	1000	n
Imazaquin	81335377	2.50E-01	I								9100	n	910	n	340	n	260000	n	20000	n
Iprodione	36734197	4.00E-02	I								1500	n	150	n	54	n	41000	n	3100	n
Isobutanol	78831	3.00E-01	I							***	1800	n	1100	n	410	n	310000	n	23000	n
Isophorone	78591	2.00E-01	I			9.50E-04	I				71	c	6.6	c	3.3	c	3000	c	670	c
Isopropalin	33820530	1.50E-02	I								550	n	55	n	20	n	15000	n	1200	n
Isopropyl methyl phosphonic acid	1832548	1.00E-01	I								3700	n	370	n	140	n	100000	n	7800	n
Isoxaben	82558507	5.00E-02	I								1800	n	180	n	68	n	51000	n	3900	n
Kepone	143500					1.80E+01	e				0.0037	c	0.00035	c	0.00018	c	0.16	c	0.035	c
Lactofen	77501634	2.00E-03	I								73	n	7.3	n	2.7	n	2000	n	160	n
Lead (tetraethyl)	78002	1.00E-07	I								0.0037	n	0.00037	n	0.00014	n	0.1	n	0.0078	n
Linuron	330552	2.00E-03	I								73	n	7.3	n	2.7	n	2000	n	160	n
Lithium	7439932	2.00E-02	e								730	n	73	n	27	n	20000	n	1600	n
Londax	83056996	2.00E-01	I								7300	n	730	n	270	n	200000	n	16000	n
Malathion	121755	2.00E-02	I								730	n	73	n	27	n	20000	n	1600	n

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg·d/mg	CPSi kg·d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Maleic hydrazide	123331	5.00E-01 I					18000 n	1800 n	680 n	510000 n	39000 n
Malononitrile	109773	2.00E-05 h					0.73 n	0.073 n	0.027 n	20 n	1.6 n
Mancozeb	8018017	3.00E-02 h					1100 n	110 n	41 n	31000 n	2300 n
Maneb	12427382	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
Manganese and compounds	7439965	5.00E-03 I	1.43E-05 I				180 n	0.052 n	6.8 n	5100 n	390 n
Mephosfolan	950107	9.00E-05 h					3.3 n	0.33 n	0.12 n	92 n	7 n
Mepiquat chloride	24307264	3.00E-02 I					1100 n	110 n	41 n	31000 n	2300 n
Mercury (inorganic)	7439976	3.00E-04 h	8.57E-05 h				11 n	0.31 n	0.41 n	310 n	23 n
Mercury (methyl)	22967926	3.00E-04 I					11 n	1.1 n	0.41 n	310 n	23 n
Merphos	150505	3.00E-05 I					1.1 n	0.11 n	0.041 n	31 n	2.3 n
Merphos oxide	78488	3.00E-05 I					1.1 n	0.11 n	0.041 n	31 n	2.3 n
Metalaxyl	57837191	6.00E-02 I					2200 n	220 n	81 n	61000 n	4700 n
Methacrylonitrile	126987	1.00E-04 I	2.00E-04 a				3.7 n	0.73 n	0.14 n	100 n	7.8 n
Methamidophos	10265926	5.00E-05 I					1.8 n	0.18 n	0.068 n	51 n	3.9 n
Methanol	67561	5.00E-01 I					18000 n	1800 n	680 n	510000 n	39000 n
Methidathion	950378	1.00E-03 I					37 n	3.7 n	1.4 n	1000 n	78 n
Methomyl	16752775	2.50E-02 I					910 n	91 n	34 n	26000 n	2000 n
Methoxychlor	72435	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
2-Methoxyethanol acetate	110496	2.00E-03 a					73 n	7.3 n	2.7 n	2000 n	160 n
2-Methoxyethanol	109864	1.00E-03 h	5.71E-03 I				37 n	21 n	1.4 n	1000 n	78 n
2-Methoxy-5-nitroaniline	99592			4.60E-02 h			1.5 c	0.14 c	0.069 c	62 c	14 c
Methyl acetate	79209	1.00E+00 h					37000 n	3700 n	1400 n	1000000 n	78000 n
Methyl acrylate	96333	3.00E-02 a					1100 n	110 n	41 n	31000 n	2300 n
2-Methylaniline hydrochloride	636215			1.80E-01 h			0.37 c	0.035 c	0.018 c	16 c	3.5 c
2-Methylaniline	95534			2.40E-01 h			0.28 c	0.026 c	0.013 c	12 c	2.7 c
Methyl chlorocarbonate	79221	1.00E+00 w					37000 n	3700 n	1400 n	1000000 n	78000 n
4-(2-Methyl-4-chlorophenoxy) butyric acid	94815	1.00E-02 I					370 n	37 n	14 n	10000 n	780 n
2-Methyl-4-chlorophenoxyacetic acid	94746	5.00E-04 I					18 n	1.8 n	0.68 n	510 n	39 n
2-(2-Methyl-14-chlorophenoxy)propionic acid	93652	1.00E-03 I					37 n	3.7 n	1.4 n	1000 n	78 n
Methylcyclohexane	108872		8.57E-01 h				31000 n	3100 n			
Methylene bromide	74953	1.00E-02 a				•••	61 n	37 n	14 n	10000 n	780 n
Methylene chloride	75092	6.00E-02 I	8.57E-01 h	7.50E-03 I	1.64E-03 I	•••	4.1 c	3.8 c	0.42 c	380 c	85 c
4,4'-Methylene bis(2-chloroaniline)	101144	7.00E-04 h		1.30E-01 h	1.30E-01 h		0.52 c	0.048 c	0.024 c	22 c	4.9 c
4,4'-Methylenebisbenzeneamine	101779			2.50E-01 w			0.27 c	0.025 c	0.013 c	11 c	2.6 c
4,4'-Methylene bis(N,N'-dimethyl)aniline	101611			4.60E-02 I			1.5 c	0.14 c	0.069 c	62 c	14 c
4,4'-Methylenediphenyl isocyanate	101688		5.71E-06 I			•••	0.035 n	0.021 n			
Methyl ethyl ketone	78933	6.00E-01 I	2.86E-01 I			•••	1900 n	1000 n	810 n	610000 n	47000 n
Methyl hydrazine	60344			1.10E+00 w			0.061 c	0.0057 c	0.0029 c	2.6 c	0.58 c
Methyl isobutyl ketone	108101	8.00E-02 h	2.29E-02 a				2900 n	84 n	110 n	82000 n	6300 n
Methyl methacrylate	80626	8.00E-02 h					2900 n	290 n	110 n	82000 n	6300 n
2-Methyl-5-nitroaniline	99558			3.30E-02 h			2 c	0.19 c	0.096 c	87 c	19 c
	298000	2.50E-04 I					9.1 n	0.91 n	0.34 n	260 n	20 n

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ntaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	V O C	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Methylphenol (o-cresol)	95487	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Methylphenol (m-cresol)	103394	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Methylphenol (p-cresol)	106445	5.00E-03 *h*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
ethyl styrene (mixture)	25013154	6.00E-03 *a*	1.14E-02 *a*			•••	60 *n*	42 *n*	8.1 *n*	6100 *n*	470 *n*
ethyl styrene (alpha)	98839	7.00E-02 *a*				•••	430 *n*	260 *n*	95 *n*	72000 *n*	5500 *n*
ethyl tertbutyl ether (MTBE)	1634044	5.00E-03 *a*	8.57E-01 *i*			•••	180 *n*	3100 *n*	6.8 *n*	5100 *n*	390 *n*
etolaclor (Dual)	51218452	1.50E-01 *h*					5500 *n*	550 *n*	200 *n*	150000 *n*	12000 *n*
etribuzin	21807649	2.50E-02 *i*					910 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
irex	2385855	2.00E-04 *i*		1.80E+00 *w*			0.037 *c*	0.0035 *c*	0.0018	1.6 *c*	0.35 *c*
olinate	2212671	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
olybdenum	7439987	5.00E-03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
onochloramine	10599903	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
ıled	300765	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Naphthylamine	91598			1.30E+02 *a*			0.00052 *c*	0.000048 *c*	0.000024 *c*	0.022 *c*	0.0049 *c*
ipropamide	15299997	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
ckel refinery dust					8.40E-01 *i*			0.0075 *c*			
ckel (soluble salts)	7440020	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
ckel subsulfide	12035722				1.70E+00 *i*			0.0037 *c*			
trapyrin	1929824	1.50E-03 *w*					55 *n*	5.5 *n*	2 *n*	1500 *n*	120 *n*
trate	14797558	1.60E+00 *i*					58000 *n*	5800 *n*	2200 *n*	1000000 *n*	130000 *n*
tric Oxide	10102439	1.00E-01 *w*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
trite	14797650	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Nitroaniline	88744	6.00E-05 *w*	5.71E-05 *h*				2.2 *n*	0.21 *n*	0.081 *n*	61 *n*	4.7 *n*
Nitroaniline	99092	3.00E-03 *o*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
Nitroaniline	100016	3.00E-03 *o*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
trobenzene	98953	5.00E-04 *i*	5.71E-04 *a*			•••	3.4 *n*	2.1 *n*	0.68 *n*	510 *n*	39 *n*
trofurantoin	67209	7.00E-02 *h*					2600 *n*	260 *n*	95 *n*	72000 *n*	5500 *n*
trofurazone	59870			1.50E+00 *h*	9.40E+00 *h*		0.045 *c*	0.00067 *c*	0.0021 *c*	1.9 *c*	0.43 *c*
trogen dioxide	10102440	1.00E+00 *w*					37000 *n*	3700 *n*	1400 *n*	1000000 *n*	78000 *n*
troguanidine	556887	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Nitrophenol	100027	6.20E-02 *o*					2300 *n*	230 *n*	84 *n*	63000 *n*	4800 *n*
Nitropropane	79469		5.71E-03 *i*		9.40E+00 *h*		210 *n*	0.00067 *c*			
-Nitrosodi-n-butylamine	924163			5.40E+00 *i*	5.60E+00 *i*		0.012 *c*	0.0011 *c*	0.00058 *c*	0.53 *c*	0.12 *c*
-Nitrosodiethanolamine	1116547			2.80E+00 *i*			0.024 *c*	0.0022 *c*	0.0011 *c*	1 *c*	0.23 *c*
-Nitrosodiethylamine	55185			1.50E+02 *i*	1.51E+02 *i*		0.00045 *c*	0.000041 *c*	0.000021 *c*	0.019 *c*	0.0043 *c*
-Nitrosodimethylamine	62759			5.10E+01 *i*	4.90E+01 *i*		0.0013 *c*	0.00013 *c*	0.000062 *c*	0.056 *c*	0.013 *c*
-Nitrosodiphenylamine	86306			4.90E-03 *i*			14 *c*	1.3 *c*	0.64 *c*	580 *c*	130 *c*
-Nitroso di-n-propylamine	621647			7.00E+00 *i*			0.0096 *c*	0.00089 *c*	0.00045 *c*	0.41 *c*	0.091 *c*
-Nitroso-N-methylethylamine	10595956			2.20E+01 *i*			0.0031 *c*	0.00028 *c*	0.00014 *c*	0.13 *c*	0.029 *c*
-Nitrosopyrrolidine	930552			2.10E+00 *i*	2.13E+00 *i*		0.032 *c*	0.0029 *c*	0.0015 *c*	1.4 *c*	0.3 *c*
-Nitrotoluene	99081	1.00E-02 *h*				•••	61 *n*	37 *n*	14 *n*	10000 *n*	780 *n*

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
p-Nitrotoluene	99990	1.00E-02 h				••	61 n	37 n	14 n	10000 n	780 n
Norflurazon	27314132	4.00E-02 I					1500 n	150 n	54 n	41000 n	3100 n
NuStar	85509199	7.00E-04 I					26 n	2.6 n	0.95 n	720 n	55 n
Octabromodiphenyl ether	32536520	3.00E-03 I					110 n	11 n	4.1 n	3100 n	230 n
Octahydro-1357-tetranitro-1357-tetrazocine	2691410	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n
Octamethylpyrophosphoramide	152169	2.00E-03 h					73 n	7.3 n	2.7 n	2000 n	160 n
Oryzalin	19044883	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n
Oxadiazon	19666309	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
Oxamyl	23135220	2.50E-02 I					910 n	91 n	34 n	26000 n	2000 n
Oxyfluorfen	42874033	3.00E-03 I					110 n	11 n	4.1 n	3100 n	230 n
Paclobutrazol	76738620	1.30E-02 I					470 n	47 n	18 n	13000 n	1000 n
Paraquat	1910425	4.50E-03 I					160 n	16 n	6.1 n	4600 n	350 n
Parathion	56382	6.00E-03 h					220 n	22 n	8.1 n	6100 n	470 n
Pebulate	1114712	5.00E-02 h					1800 n	180 n	68 n	51000 n	3900 n
Pendimethalin	40487421	4.00E-02 I					1500 n	150 n	54 n	41000 n	3100 n
Pentabromo-6-chloro cyclohexane	87843			2.30E-02 h			2.9 c	0.27 c	0.14 c	120 c	28 c
Pentabromodiphenyl ether	32534819	2.00E-03 I					73 n	7.3 n	2.7 n	2000 n	160 n
Pentachlorobenzene	608935	8.00E-04 I				••	4.9 n	2.9 n	1.1 n	820 n	63 n
Pentachloronitrobenzene	82688	3.00E-03 I		2.60E-01 h		••	0.041 c	0.024 c	0.012 c	11 c	2.5 c
Pentachlorophenol	87865	3.00E-02 I		1.20E-01 I			0.56 c	0.052 c	0.026 c	24 c	5.3 c
Permethrin	52645531	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n
Phenmedipham	13684634	2.50E-01 I					9100 n	910 n	340 n	260000 n	20000 n
Phenol	108952	6.00E-01 I					22000 n	2200 n	810 n	610000 n	47000 n
m-Phenylenediamine	108452	6.00E-03 I					220 n	22 n	8.1 n	6100 n	470 n
p-Phenylenediamine	106503	1.90E-01 h					6900 n	690 n	260 n	190000 n	15000 n
Phenylmercuric acetate	62384	8.00E-05 I					2.9 n	0.29 n	0.11 n	82 n	6.3 n
2-Phenylphenol	90437			1.94E-03 h			35 c	3.2 c	1.6 c	1500 c	330 c
Phorate	298022	2.00E-04 h					7.3 n	0.73 n	0.27 n	200 n	16 n
Phosmet	732116	2.00E-02 I					730 n	73 n	27 n	20000 n	1600 n
Phosphine	7803512	3.00E-04 I	8.57E-06 h				11 n	0.031 n	0.41 n	310 n	23 n
Phosphorus (white)	7723140	2.00E-05 I					0.73 n	0.073 n	0.027 n	20 n	1.6 n
p-Phthalic acid	100210	1.00E+00 h					37000 n	3700 n	1400 n	1000000 n	78000 n
Phthalic anhydride	85449	2.00E+00 I	3.43E-01 h				73000 n	1300 n	2700 n	1000000 n	160000 n
Picloram	1918021	7.00E-02 I					2600 n	260 n	95 n	72000 n	5500 n
Pirimiphos-methyl	29232937	1.00E-02 I					370 n	37 n	14 n	10000 n	780 n
Polybrominated biphenyls	-	7.00E-06 h		8.90E+00 h			0.0076 c	0.0007 c	0.00035 c	0.32 c	0.072 c
Polychlorinated biphenyls (PCBs)	1336363			7.70E+00 I			0.0087 c	0.00081 c	0.00041 c	0.37 c	0.083 c
Aroclor 1016	12674112	7.00E-05 I					2.6 n	0.26 n	0.095 n	72 n	5.5 n
Aroclor 1254	11097691	2.00E-05 I					0.73 n	0.073 n	0.027 n	20 n	1.6 n
Polychlorinated terphenyls (PCTs)				4.50E+00 e			0.015 c	0.0014 c	0.0007 c	0.64 c	0.14 c
Polynuclear aromatic hydrocarbons							2200 n	220 n	81 n	61000 n	4700 n

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg·d/mg	CPSi kg·d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Anthracene	120127	3.00E-01 I					11000 n	1100 n	410 n	310000 n	23000 n
Benzo[a]pyrene	50328			7.30E+00 I	6.10E+00 h		0.0092 c	0.001 c	0.00043 c	0.39 c	0.088 c
Benzo[b]fluoranthene	205992			7.30E-01 e	6.10E-01 e		0.092 c	0.01 c	0.0043 c	3.9 c	0.88 c
Benzo[k]fluoranthene	207089			7.30E-02 e	6.10E-02 e		0.92 c	0.1 c	0.043 c	39 c	8.8 c
Benz[a]anthracene.	56553			7.30E-01 e	6.10E-01 e		0.092 c	0.01 c	0.0043 c	3.9 c	0.88 c
Chrysene	218019			7.30E-03 e	6.10E-03 e		9.2 c	1 c	0.43 c	390 c	88 c
Dibenz[ah]anthracene	53703			7.30E+00 e	6.10E+00 e		0.0092 c	0.001 c	0.00043 c	0.39 c	0.088 c
Fluoranthene	206440	4.00E-02 I					1500 n	150 n	54 n	41000 n	3100 n
Fluorene	86737	4.00E-02 I					1500 n	150 n	54 n	41000 n	3100 n
Indeno[1,2,3-cd]pyrene	193395			7.30E-01 e	6.10E-01 e		0.092 c	0.01 c	0.0043 c	3.9 c	0.88 c
Naphthalene	91203	4.00E-02 w					1500 n	150 n	54 n	41000 n	3100 n
Pyrene	129000	3.00E-02 I					1100 n	110 n	41 n	31000 n	2300 n
Bochloraz	67747095	9.00E-03 I		1.50E-01 I			0.45 c	0.042 c	0.021 c	19 c	4.3 c
Trofluralin	26399360	6.00E-03 h					220 n	22 n	8.1 n	6100 n	470 n
Prometon	1610180	1.50E-02 I					550 n	55 n	20 n	15000 n	1200 n
Prometryn	7287196	4.00E-03 I					150 n	15 n	5.4 n	4100 n	310 n
Pronamide	23950585	7.50E-02 I					2700 n	270 n	100 n	77000 n	5900 n
Propachlor	1918167	1.30E-02 I					470 n	47 n	18 n	13000 n	1000 n
Propanil	709988	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
Propargite	2312358	2.00E-02 I					730 n	73 n	27 n	20000 n	1600 n
Propargyl alcohol	107197	2.00E-03 I					73 n	7.3 n	2.7 n	2000 n	160 n
Propazine	139402	2.00E-02 I					730 n	73 n	27 n	20000 n	1600 n
Propham	122429	2.00E-02 I					730 n	73 n	27 n	20000 n	1600 n
Propiconazole	60207901	1.30E-02 I					470 n	47 n	18 n	13000 n	1000 n
Propylene glycol	57556	2.00E+01 h					730000 n	73000 n	27000 n	1000000 n	1000000 n
Propylene glycol, monoethyl ether	52125538	7.00E-01 h					26000 n	2600 n	950 n	720000 n	55000 n
Propylene glycol, monomethyl ether	107982	7.00E-01 h	5.71E-01 I				26000 n	2100 n	950 n	720000 n	55000 n
Propylene oxide	75569		8.57E-03 I	2.40E-01 I	1.29E-02 I		0.28 c	0.49 c	0.013 c	12 c	2.7 c
Pursuit	81335775	2.50E-01 I					9100 n	910 n	340 n	260000 n	20000 n
Pydrin	51630581	2.50E-02 I					910 n	91 n	34 n	26000 n	2000 n
Pyridine	110861	1.00E-03 I					37 n	3.7 n	1.4 n	1000 n	78 n
Quinalphos	13593038	5.00E-04 I					18 n	1.8 n	0.68 n	510 n	39 n
Quinoline	91225			1.20E+01 h			0.0056 c	0.00052 c	0.00026 c	0.24 c	0.053 c
Resmethrin	10453868	3.00E-02 I					1100 n	110 n	41 n	31000 n	2300 n
Ronnel	299843	5.00E-02 h					1800 n	180 n	68 n	51000 n	3900 n
Rotenone	83794	4.00E-03 I					150 n	15 n	5.4 n	4100 n	310 n
Savey	78587050	2.50E-02 I					910 n	91 n	34 n	26000 n	2000 n
Selenious Acid	7783008	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
Selenium	7782492	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
Selenourea	630104	5.00E-03 h					180 n	18 n	6.8 n	5100 n	390 n
Sethoxydim	74051802	9.00E-02 I					3300 n	330 n	120 n	92000 n	7000 n

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Simazine	122349	5.00E-03 I		1.20E-01 h			0.56 c	0.052 c	0.026 c	24 c	5.3 c
Sodium azide	26628228	4.00E-03 I					150 n	15 n	5.4 n	4100 n	310 n
Sodium diethyldithiocarbamate	148185	3.00E-02 I		2.70E-01 h			0.25 c	0.023 c	0.012 c	11 c	2.4 c
Sodium fluoroacetate	62748	2.00E-05 I					0.73 n	0.073 n	0.027 n	20 n	1.6 n
Sodium metavanadate	13718268	1.00E-03 h					37 n	3.7 n	1.4 n	1000 n	78 n
Strontium, stable	7440246	6.00E-01 I					22000 n	2200 n	810 n	610000 n	47000 n
Strychnine	57249	3.00E-04 I					11 n	1.1 n	0.41 n	310 n	23 n
Styrene	100425	2.00E-01 I	2.86E-01 I			•••	1600 n	1000 n	270 n	200000 n	16000 n
Systhane	88671890	2.50E-02 I					910 n	91 n	34 n	26000 n	2000 n
2,3,7,8-TCDD (dioxin)	1746016			1.56E+05 h	1.16E+05 h		4.30E-07 c	5.40E-08 c	2.00E-08 c	0.000018 c	4.10E-06 c
Tebuthiuron	34014181	7.00E-02 I					2600 n	260 n	95 n	72000 n	5500 n
Temephos	3383968	2.00E-02 h					730 n	73 n	27 n	20000 n	1600 n
Terbacil	5902512	1.30E-02 I					470 n	47 n	18 n	13000 n	1000 n
Terbufos	13071799	2.50E-05 h					0.91 n	0.091 n	0.034 n	26 n	2 n
Terbutryn	886500	1.00E-03 I					37 n	3.7 n	1.4 n	1000 n	78 n
1,2,4,5-Tetrachlorobenzene	95943	3.00E-04 I				•••	1.8 n	1.1 n	0.41 n	310 n	23 n
1,1,1,2-Tetrachloroethane	630206	3.00E-02 I		2.60E-02 I	2.59E-02 I	•••	0.41 c	0.24 c	0.12 c	110 c	25 c
1,1,2,2-Tetrachloroethane	79345			2.00E-01 I	2.03E-01 I	•••	0.052 c	0.031 c	0.016 c	14 c	3.2 c
Tetrachloroethylene (PCE)	127184	1.00E-02 I		5.20E-02 o	2.03E-03 o	•••	1.1 c	3.1 c	0.061 c	55 c	12 c
2,3,4,6-Tetrachlorophenol	58902	3.00E-02 I					1100 n	110 n	41 n	31000 n	2300 n
p,a,a,a-Tetrachlorotoluene	5216251			2.00E+01 h		•••	0.00053 c	0.00031 c	0.00016 c	0.14 c	0.032 c
Tetrachlorovinphos	961115	3.00E-02 I		2.40E-02 h			2.8 c	0.26 c	0.13 c	120 c	27 c
Tetraethyldithiopyrophosphate	3689245	5.00E-04 I					18 n	1.8 n	0.68 n	510 n	39 n
Thallic oxide	1314325	7.00E-05 w					2.6 n	0.26 n	0.095 n	72 n	5.5 n
Thallium											
Thallium acetate	563688	9.00E-05 I					3.3 n	0.33 n	0.12 n	92 n	7 n
Thallium carbonate	6533739	8.00E-05 I					2.9 n	0.29 n	0.11 n	82 n	6.3 n
Thallium chloride	7791120	8.00E-05 I					2.9 n	0.29 n	0.11 n	82 n	6.3 n
Thallium nitrate	10102451	9.00E-05 I					3.3 n	0.33 n	0.12 n	92 n	7 n
Thallium selenite	12039520	9.00E-05 w					3.3 n	0.33 n	0.12 n	92 n	7 n
Thallium sulfate	7446186	8.00E-05 I					2.9 n	0.29 n	0.11 n	82 n	6.3 n
Thiobencarb	28249776	1.00E-02 I					370 n	37 n	14 n	10000 n	780 n
2-(Thiocyanomethylthio)-benzothiazole	21564170	3.00E-02 h					1100 n	110 n	41 n	31000 n	2300 n
Thiofanox	39196184	3.00E-04 h					11 n	1.1 n	0.41 n	310 n	23 n
Thiophanate-methyl	23564058	8.00E-02 I					2900 n	290 n	110 n	82000 n	6300 n
Thiram	137268	5.00E-03 I					180 n	18 n	6.8 n	5100 n	390 n
Tin and compounds		6.00E-01 h					22000 n	2200 n	810 n	610000 n	47000 n
Toluene	108883	2.00E-01 I	1.14E-01 w			•••	750 n	420 n	270 n	200000 n	16000 n
Toluene-2,4-diamine	95807			3.20E+00 h			0.021 c	0.002 c	0.00099 c	0.89 c	0.2 c
Toluene-2,5-diamine	95705	6.00E-01 h					22000 n	2200 n	810 n	610000 n	47000 n
Toluene-2,6-diamine	823405	2.00E-01 h					7300 n	730 n	270 n	200000 n	16000 n
	106490			1.90E-01 h			0.35 c	0.033 c	0.017 c	15 c	3.4 c

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Toxaphene	8001352			1.10E+00 I	1.12E+00 I		0.061 c	0.0056 c	0.0029 c	2.6 c	0.58 c
Tralomethrin	66841256	7.50E-03 I					270 n	27 n	10 n	7700 n	590 n
Triallate	2303175	1.30E-02 I					470 n	47 n	18 n	13000 n	1000 n
Triasulfuron	82097505	1.00E-02 I					370 n	37 n	14 n	10000 n	780 n
1,2,4-Tribromobenzene	615543	5.00E-03 I				•••	30 n	18 n	6.8 n	5100 n	390 n
Tributyltin oxide (TBTO)	56359	3.00E-05 I					1.1 n	0.11 n	0.041 n	31 n	2.3 n
2,4,6-Trichloroaniline hydrochloride	33663502			2.90E-02 h			2.3 c	0.22 c	0.11 c	99 c	22 c
2,4,6-Trichloroaniline	634935			3.40E-02 h			2 c	0.18 c	0.093 c	84 c	19 c
1,2,4-Trichlorobenzene	120821	1.00E-02 I	5.71E-02 h			•••	190 n	210 n	14 n	10000 n	780 n
1,1,1-Trichloroethane	71556	9.00E-02 w	2.86E-01 w			•••	1300 n	1000 n	120 n	92000 n	7000 n
1,1,2-Trichloroethane	79005	4.00E-03 I		5.70E-02 I	5.60E-02 I	•••	0.19 c	0.11 c	0.055 c	50 c	11 c
Trichloroethylene (TCE)	79016	6.00E-03 a		1.10E-02 w	6.00E-03 a	•••	1.6 c	1 c	0.29 c	260 c	58 c
Trichlorofluoromethane	75694	3.00E-01 I	2.00E-01 a			•••	1300 n	730 n	410 n	310000 n	23000 n
2,4,5-Trichlorophenol	95954	1.00E-01 I					3700 n	370 n	140 n	100000 n	7800 n
2,4,6-Trichlorophenol	88062			1.10E-02 I	1.09E-02 I		6.1 c	0.57 c	0.29 c	260 c	58 c
2,4,5-Trichlorophenoxyacetic acid	93765	1.00E-02 I					370 n	37 n	14 n	10000 n	780 n
2-(2,4,5-Trichlorophenoxy)propionic acid	93721	8.00E-03 I					290 n	29 n	11 n	8200 n	630 n
1,1,2-Trichloropropane	598776	5.00E-03 I				•••	30 n	18 n	6.8 n	5100 n	390 n
1,2,3-Trichloropropane	96184	6.00E-03 I		7.00E+00 I		•••	0.0015 c	0.00089 c	0.00045 c	0.41 c	0.091 c
1,2,3-Trichloropropene	96195	5.00E-03 h				•••	30 n	18 n	6.8 n	5100 n	390 n
1,1,2-Trichloro-1,2,2- trifluoroethane	76131	3.00E+01 I	8.57E+00 h			•••	59000 n	31000 n	41000 n	1000000 n	1000000 n
Tridiphane	58138082	3.00E-03 I					110 n	11 n	4.1 n	3100 n	230 n
Triethylamine	121448		2.00E-03 I				73 n	7.3 n			
Trifluralin	1582098	7.50E-03 I		7.70E-03 I			8.7 c	0.81 c	0.41 c	370 c	83 c
1,2,4-Trimethylbenzene	95636	5.00E-04 a				•••	3 n	1.8 n	0.68 n	510 n	39 n
1,3,5-Trimethylbenzene	108678	4.00E-04 a				•••	2.4 n	1.5 n	0.54 n	410 n	31 n
Trimethyl phosphate	512561			3.70E-02 h			1.8 c	0.17 c	0.085 c	77 c	17 c
1,3,5-Trinitrobenzene	99354	5.00E-05 I					1.8 n	0.18 n	0.068 n	51 n	3.9 n
Trinitrophenylmethylnitramine	479458	1.00E-02 h					370 n	37 n	14 n	10000 n	780 n
2,4,6-Trinitrotoluene	118967	5.00E-04 I		3.00E-02 I			2.2 c	0.21 c	0.11 c	95 c	21 c
Uranium (soluble salts)	7440611	3.00E-03 I					110 n	11 n	4.1 n	3100 n	230 n
Vanadium	7440622	7.00E-03 h					260 n	26 n	9.5 n	7200 n	550 n
Vanadium pentoxide	1314621	9.00E-03 I					330 n	33 n	12 n	9200 n	700 n
Vanadium sulfate	36907423	2.00E-02 h					730 n	73 n	27 n	20000 n	1600 n
Vernam	1929777	1.00E-03 I					37 n	3.7 n	1.4 n	1000 n	78 n
Vinclozolin	50471448	2.50E-02 I					910 n	91 n	34 n	26000 n	2000 n
Vinyl acetate	108054	1.00E+00 h	5.71E-02 I				37000 n	210 n	1400 n	1000000 n	78000 n
Vinyl bromide	593602		8.57E-04 I			•••	5.2 n	3.1 n			
Vinyl chloride	75014			1.90E+00 h	3.00E-01 h	•••	0.019 c	0.021 c	0.0017 c	1.5 c	0.34 c
Warfarin	81812	3.00E-04 I					11 n	1.1 n	0.41 n	310 n	23 n
m-Xylene	108323	2.00E+00 h	2.00E-01 w			•••	1400 n	730 n	2700 n	1000000 n	160000 n
o-Xylene	95476	2.00E+00 h	2.00E-01 w			•••	1400 n	730 n	2700 n	1000000 n	160000 n

EPA Region III Risk-Based Concentrations: R.L. Smith (11/08/94)

Sources: I=IRIS A=HEAST a=HEAST alt. w=Withdrawn from IRIS or HEAST e=EPA-ECAO provisional o=Other EPA documents

Basis of RBC: c=carcinogenic effects n=noncarcinogenic effects.

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
p-Xylene	1.06E+05		8.57E-02 w			•••	5.20E+02 n	3.10E+02 n			
Xylene (mixed)	1.33E+06	2.00E+00 I				•••	12000 n	7300 n	2700 n	1000000 n	160000 n
Zinc	7.44E+06	3.00E-01 I					11000 n	1100 n	410 n	310000 n	23000 n
Zinc phosphide	1.31E+06	3.00E-04 I					11 n	1.1 n	0.41 n	310 n	23 n
Zineb	1.21E+07	5.00E-02 I					1800 n	180 n	68 n	51000 n	3900 n

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APPENDIX F
FIELD FORMS

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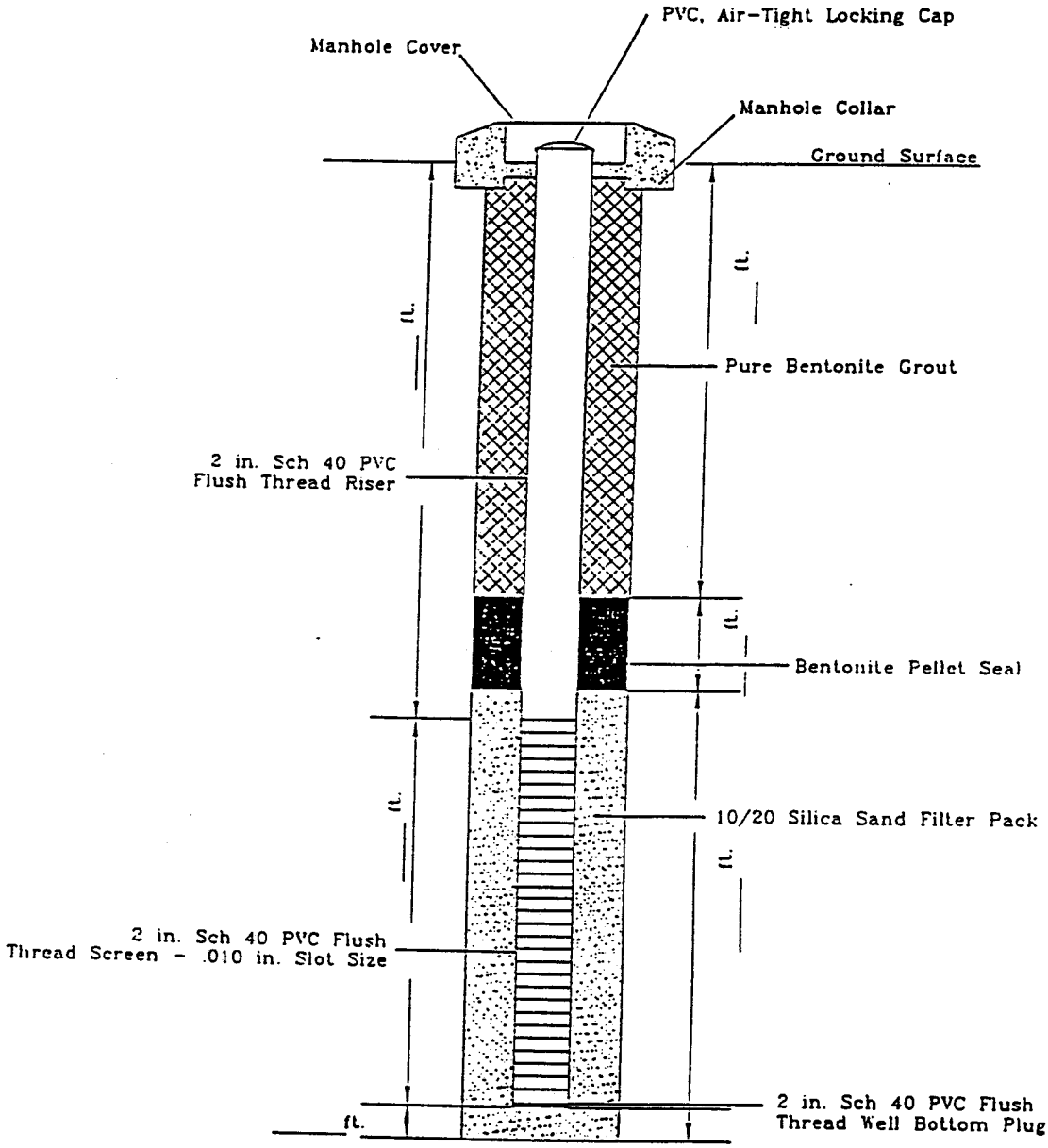
Project: _____	Date Installed: _____
Town/City: _____	Drilling Contractor: _____
County: _____ State: _____	Drilling Method: _____
TOC Elev: _____	Borehole Diameter: _____
Ground Elev.: _____	Development Technique: _____
Water Level: _____ TOC	
Total Well Depth: _____	Not To Scale



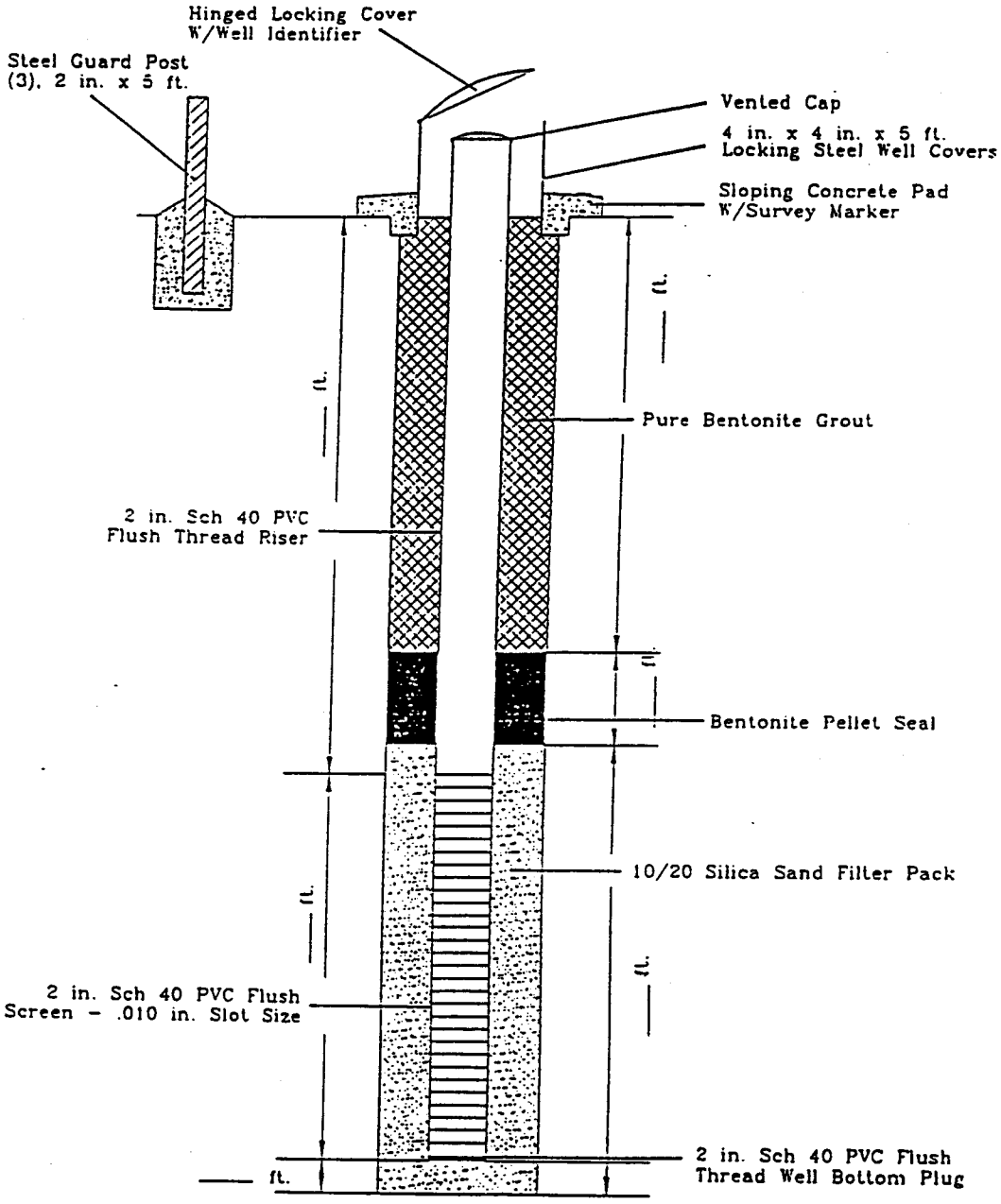
MONITORING WELL OR PIEZOMETER CONSTRUCTION LOG

Well No. _____

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

NOVEMBER 1994 FORMS\MONLOG

Project: _____	Date Installed: _____
Town/City: _____	Drilling Contractor: _____
County: _____ State: _____	Drilling Method: _____
TOC Elev: _____	Borehole Diameter: _____
Ground Elev.: _____	Development Technique: _____
Water Level: _____ TOC	
Total Well Depth: _____	Not To Scale



MONITORING WELL OR PIEZOMETER CONSTRUCTION LOG

Well No. _____

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

NOVEMBER 1994 FORMS\MONLOG2

OPERATIONAL TECHNOLOGIES
WELL DEVELOPMENT LOG

Monitoring Well: _____

Development Start: (Date) _____ (Time) _____

Development End : (Date) _____ (Time) _____

Developed By : _____

PID Reading : (Background) _____ ppm (Reading) _____ ppm

Groundwater : (Water Level) _____ btoc/bls (Well Depth) _____ btoc/bls

Volume of Water in the Well:

$$V_{(gal)} = [0.0408] \times [\text{Well Diameter}_{(inches)}]^2 \times [\text{Height of Water in Well}_{(feet)}]$$

$V_{(gal)}$ =

$V_{(gal)} \times 3$ =

Development Method : _____ Containment : _____

Average Rate of Removal of Water : _____ gal/min.

Weather : _____

Comments :

Time	Volume of Water Removed (gallons)	Water Level ft BTOC	Temp (°C)	pH	Conductivity (uS/cm)	Clarity	Remarks

FIELD DATA FORM
GROUNDWATER MONITORING WELLS

Operational Technologies Corporation
San Antonio, Texas 78229-4253
(210) 731-0000

Project:_____ Date:_____

Site:_____ Sample Identification Number:_____

Csg/Diameter:_____, and Csg/Type:_____ Riser Elevation:_____

Stick-Up Height:_____ Flush Depth:_____

Water Depth from Top of Casing:_____ Time:_____

Total Well Depth:_____ Rate of Recharge:_____

Water Depth at Time of Sampling:_____ Sample Time:_____

Purging Device:_____ Number of Well Volumes:_____

Gallons to Purge:_____ Actual Gallons Purged:_____

pH: _____ _____ Time:_____ Type: Hydac #_____

_____ _____

Conductivity, umhos/cm Time:_____ Type: Hydac #_____

_____ _____ Temperature:_____

_____ _____ Turbidity:_____

Chest No.:_____ Seal No.:_____ Bus Bill No.:_____

Chest No.:_____ Seal No.:_____ Bus Bill No.:_____

Notes concerning condition of well, odor, color or problems:

_____

_____

_____

_____

Sample Collector(s):_____

_____

_____

OPERATIONAL TECHNOLOGIES
WELL SAMPLING LOG

Installation: Well No.

Client/Project: Site:

Sampled By: Sample No:

Sample Start: (Date) (Time) Sample End: (Date) (Time)

Background PID Reading: PID Reading:

Depth to Water (BTOC):

Screen Interval:

Sampling method:

Sampling Equipment:

Sampling Equipment Decontamination method:

Weather:

Lab Analyses:
(including preservatives and filtering if applicable)

QA/QC Samples:

Comments:
(including depth of pump if used for sampling)

Time	Temperature (°C)	pH	Conductivity (uS/cm)	Clarity/ Turbidity	Remarks

OPERATIONAL TECHNOLOGIES
WELL PURGING LOG

Installation: Site:

Client/Project: Well No:

Purge Start: (Date) (Time) Sample No:

Purge End: (Date) (Time) PID Reading:

Purged By: Background PID Reading:

Depth to top of screen: Depth to bottom of screen:

Depth to Water (BTOC): Depth to Bottom of Well (BTOC):

Volume of Water in Well (gallons) = (0.0408) x (well diameter (inches))^2 x height of water column (feet)

Volume of Water in Well x 3 =

Purge method:

Purge Water Containment:

Average Rate of Removal of Water:

LNAPL/DNAPL Thickness: Equipment for NAPL:

Weather:

Comments:

Time	Volume of Water Removed (gallons)	Water Level ft BTOC	Depth of pump intake	Temp (°C)	pH	Conductivity (uS/cm)	Clarity/ Turbidity	Remarks

BOREHOLD SAMPLE SUMMARY

SITE:_____ DATE_____

Use this form to compile information on brass sleeve samples for comparison of field screening data and selection of sleeves for laboratory chemical analysis.

Bore-hole	Interval (ft. BLS)	No. of Sleeves	Screening Data			Sleeve Distribution		
			PID (ppm)	ATHA PID (ppm)	GC (ppm)	Chemical Analysis	OpTech	Other

Indicate field QA/QC samples sent for laboratory analysis as follows:

FD - field duplicate.
MS - matrix spike/matrix spike duplicate.

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

WATER - LEVEL/FREE - PRODUCT DATA

SITE LOCATION:

PROJECT No.:

Date	Well Number	Water Level BTOC*	Free-Product BTOC*	Initials

Comments: _____

Signatures of Field Personnel: _____

Date	Well Number	Water Level BTOC*	Free Product BTOC*	Initials

Comments: _____

Signatures of Field Personnel: _____

*Below Top of Casing

OPERATIONAL TECHNOLOGIES
SAMPLE KIT REQUEST FORM

TO: _____ Analytical Laboratory_____

FROM: _____ at OpTech, (210) 731-0000

DATE: _____

Please provide the containers and supplies below for soil and/or water analyses. If you have any questions or concerns, please contact the requestor or the investigation site manager.

OpTech Project_____ Site Manager/Telephone_____

Send Sample Kit to: _____

_____

_____

Sample kit must arrive ☐ morning ☐ afternoon on _____.

CONTAINERS FOR SOIL SAMPLES

Soil samples submitted by OpTech will be contained in ☐ brass sleeves or ☐ 4 oz. wide mouth jar

Trip blanks for soil: ☐ VOA with water or ☐ Na_2So_4 Salt

ANALYSIS	PRESERVATIVE	PREFERRED CONTAINER	INVESTIGATION SAMPLES	FIELD QA/QC SAMPLES	TOTAL NUMBER OF CONTAINERS

CONTAINERS FOR WATER SAMPLES

Trip blanks for water: ☐ VOA with water

ANALYSIS	PRESERVATIVE	PREFERRED CONTAINER	INVESTIGATION SAMPLES	FIELD QA/QC SAMPLES	TOTAL NUMBER OF CONTAINERS

ADDITIONAL SUPPLIES:

_____Bubble packaging or foam inserts for protection of all glass containers. _____Ice chests

_____Chain-of-Custody forms _____Labels for containers _____Custody seals

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

DAILY SIGN IN/OUT LOG

Site Location: **Project No.:** **Date:**

Name	Company/Affiliation	Time In	Time Out

OPTECH
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CORPORATION

DAILY LOG			
DATE			
NO.			
SHEET		OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME	**PROJECT NO.**
FIELD ACTIVITY SUBJECT:	
Personnel On Site:	
Equipment:	
Productivity:	
Activities:	
In-Field Modification:	
Visitors on Site:	**Changes From Plans and Specifications, and Other Special Orders and Important Decisions:**
Weather Conditions:	**Important Telephone Calls:**
SUPERVISOR:	**DATE:**

OPTECH
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CORPORATION

DECON WATER DISPOSAL LOG

Site Location: **Project No.:**

Date	Time	Volume	Disposition

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

DAILY SITE SAFETY MEETING

SITE LOCATION:_____ **PROJECT NO.:**_____

DATE	TIME	SITE MANAGER	ATTENDEES

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

CALIBRATION LOG

EQUIPMENT:_____

SITE LOCATION: PROJECT NO.:

Date/Time	Equipment/ Serial No.	Calibration Standard	Cal. Gas Lot No.	Calibrated By:

DRUM LABEL

Site _____

Source Location _____

Project Name _____

Project Number _____

Well Number _____

IDW Waste Type _____

Date Generated _____

Field Observations _____

_____

Collected by _____
Name Company Phone

Robins AFB P.O.C _____
Name Phone

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

INVESTIGATION DERIVED WASTE LOG

SITE LOCATION: PROJECT NO.:

Drum Identification No.	Contents (Water/Soil Cuttings/Borehole/MW/Decon)	% Full

Location of Drums: _____

Date Stored: _____

Site Manager: _____

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

DOCUMENT SUBMITTAL LOG

Site Location: **Project No.:**

Date Submitted	Number	Description	Name	Date Approved

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

MEETING SIGN-UP SHEET

MEETING:_____	DATE:_____
TIME:_____	LOCATION:_____

NAME/RANK	TITLE	MAILING ADDRESS	TELEPHONE

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

FIELD CHANGE REQUEST FORM

Date: _____

Field Change No.: _____

Project No.: _____

Applicable Document _____

Description:

_____

_____

_____

Reason For Change:

_____

_____

_____

Recommended Disposition:

_____

_____

_____

Impact on Present and Completed Work:

_____

_____

_____

Final Disposition:

_____

_____

_____

Requested By:
Field / Project Manager: _____

Approvals:
Project Manager: _____

OPTECH
Operational Technologies
CORPORATION

CHAIN-OF-CUSTODY AND LAB REQUEST WORK FORM

Project Number:	Client/Project Name:	Project Location:

Field Sample No./ Identification	Date and Time	Grab	Composite	Sample Container (Identification)	Sample Type (Liquid, Sludge, etc.)	Preservative	PCM	TEM	FLM	TPH	BTEX	TCLP	LEAD	SEMIVOLS	PCB	TOX	TOC	OTHER	Laboratory Remarks

Samplers (Signature)	Relinquished By (Signature)	Date / Time	Received By (Signature)	Date / Time	Intact
OpTech Point of Contact	Relinquished By (Signature)	Date / Time	Received By (Signature)	Date / Time	Intact
	Relinquished By (Signature)	Date / Time	Received By (Signature)	Date / Time	Intact

SAMPLER REMARKS:	Received for Laboratory (Signature)	Date / Time	Laboratory No.
Container Seal No.	Date Results Cut		

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

OPERATIONAL TECHNOLOGIES

MODIFICATION TO WORK PLAN FOR FIELD WORK

ORIGINATOR/DATE:_____

ANG BASE/STATION:_____

WORK PLAN TOPIC:_____

_____

_____

SUGGESTED MODIFICATION FOR FIELD WORK:_____

_____

_____

_____

_____

REASON FOR MODIFICATION:_____

_____

_____

_____

_____

ANGRC PROJECT MANAGER APPROVAL:_____

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

NON-CONFORMANCE REPORT

Project No.:_____

Project Name:_____

Date:_____

NON-CONFORMANCE:

IDENTIFIED BY:_____ Date:_____

CORRECTIVE ACTION REQUIRED:

TO BE PERFORMED BY:_____ Date:_____
MUST CORRECTION BE VERIFIED? YES_____ NO_____
TO BE VERIFIED BY:_____PREPARED BY:_____ Date:_____

CORRECTIVE ACTION TAKEN:

PERFORMED BY:_____ Date:_____
VERIFIED BY:_____ Date:_____

APPROVED BY:_____ Date:_____

_____ Date:_____

OPERATIONAL TECHNOLOGIES
DEVIATIONS FROM WORK PLAN
DURING FIELD WORK

ORIGINATOR/DATE: _____

ANG BASE/STATION: _____

WORK PLAN TOPIC: _____

_____

_____

DEVIATION IN FIELD WORK: _____

_____

_____

_____

_____

_____

_____

_____

CHANGES TO SCOPE, SCHEDULE, OR COST: _____

_____

_____

_____

OPTECH PROJECT MANAGER ACCEPTANCE: _____

ANGRC PROJECT MANAGER ACCEPTANCE: _____

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

VARIANCE REQUEST

SITE LOCATION: PROJECT NO.:

VARIANCE (Include Justification)	VR No.:_____ Date:_____
Description: REQUESTED BY:_____ Date:_____	
APPROVED BY:_____ Project Director/Designee _____ Project Quality Assurance Manager	Date:_____ Date:_____
APPLICABLE DOCUMENTS(s) AND SECTION NO.(s)	

APPENDIX G
DRAFT FINAL COMMENTS AND RESPONSES

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COMMENT RESPONSES

Guy Neal

Comment 1

Regarding IRP Site #1, elevated levels of methylene chloride in MW1-2, which appears to be cross-gradient from the IRP site. This suggests that the source of contamination in MW1-2 is not IRP Site #1, or that groundwater gradient fluctuates seasonally. My suggestion is that a contingency be added to allow for the addition of a new source location (IRP Site) if determined during the field investigation another source exists.

Response

Recommendations for further investigations will be made if results of the investigation indicate additional sources may exist. Please note that methylene chloride was detected in MW1-1, not MW1-2 as stated in the comment.

Comment 2

Regarding the on-site laboratory, this lab will be equipped to analyze VOC and SVOC using a GC/MS setup. The justification given for a mobile lab is to get "real time" results during the investigation. Based on the number of activities planned and the total number of sites to be investigated, I do not think that real-time results is critical. Work at various areas can easily be scheduled such that real-time results are not necessary, except for possibly the final stages of the investigation.

Another justification for using a mobile lab may be the price per sample savings. However, I think that competitive pricing and rapid turnaround times can be realized at a local fixed laboratory. My suggestion is to either eliminate usage of a mobile lab or to complete a cost analysis to show a true benefit of having a mobile lab on-site.

Response

In order to expedite the RI Report preparation the laboratory results will be input into a data management system that will provide "real time" mapping and allow interpretation of the data. By having real time analytical results the report preparation will occur as field work is being performed, thereby expediting the project as requested by the ANGRC.

It is unlikely that a local laboratory could provide analytical results with 24-hour turnaound times at a significantly lower cost. Additionally, integration of the laboratory results with other investigation results into the data management system can be performed much more efficiently with electronic data transfer from the mobile laboratory instruments. Based on

these factors and the resulting shorter time required to complete the RI Report we will proceed utilizing an on-site laboratory as indicated in the RI Work Plan.

Comment 3

If a mobile lab is not used, I suggest that the number of VOC and SVOC samples be re-evaluated and reduced. The landfill area and the burn pit area are two examples that a reduction in VOC and SVOC testing may be reduced.

Response

The objective of a RI is to delineate the nature and extent of contamination. In order to achieve this goal initial samples must be collected and analyzed for all potential contaminants of concern. As stated in the Work Plan, analyses that do not detect contaminants of concern during the primary phase of field work will be eliminated during the secondary phase of field work.

Comment 4

Management of the data appears to be critical to the completion of this phase of the project. When reviewing the document, it was not apparent to me that a field engineer or other qualified person would be collecting data points and analyzing to direct additional work that may be appropriate. If a person is referenced in the work plan, then disregard this suggestion.

Response

The Field Team Leader identified in the Quality Assurance Plan will be responsible for directing the field work as described in the comment. This person will be a scientist with a college degree and several years of experience directing similar investigations.

Comment 5

Overall, the work plan seem very thorough and should be adequate to achieve the goal of defining soil and groundwater contamination boundaries as they exist on the site.

Response

Thank you.

Major Rein

Comment 1

Ref. 5.0: Any time groundwater is drawn, a well start card (permit) is required by the state water resources divisions, (503) 378-8455 ext. 295 (attn: Rob Carter). After consultation w/ Rob you may find he will waive this requirement for your Geoprobe samples.

Response

Start cards will be obtained by the driller for monitoring wells installed during the RI. We have contacted Rob Carter and he indicates that we do not need start cards for the Geoprobe samples. Thank you for the information.

Comment 2

Ref. 6.2.2: Further describe the procedures used to arrive at PAGs. Please list any ARARs used in this procedure.

Response

Per USEPA guidance PAGs will be established by determining the 95th percentile concentration for each detected compound. Details on how this will be performed is attached.

Comment 3

Ref. 6.2.3: Describe your level of confidence in relying on phase I data (groundwater elev.) when deciding if you go to phase II where DNAPLs are involved. You may not see traces of DNAPLs in phase I data and elect not to go to phase II where DNAPLs may be present.

Response

Any potential source would originate at the ground surface and have to migrate through the soil and groundwater column before resting as a DNAPL on a confining layer. It is extremely unlikely that DNAPL would be present at the bottom of an aquifer while there is no detection of that compound in the overlying sediment and/or groundwater. We are very confident that groundwater samples collected at the water table will have dissolved concentrations if there is an underlying DNAPL.

Comment 4

Ref. 6.2.7: Our confidence in lab results is equally as important as your Q.C. manager's. We'd like to know acceptable ranges of Q.C. data for each level of quality (B & C) for indicators such as % recovery and relative percent difference. Simply publishing these limits would be helpful (not all regulators have the referenced HAZWRAP guide). Many times regulators require stricter Q.C. levels than the ones we use. They have no way of commenting until we give them the levels. This will avoid many conflicts and possible re-do of samples/analyses.

Response

Analytical precision, accuracy and sensitivity requirements for analytical definitive (Level C) and screening (Level B) data are presented in Tables 4.1 through 5.2 of the QAPP. Field measurement data accuracy requirements are located in Section 8 of the QAPP.

Comment 5

Ref. 6.3.1: Recommend comparing results to U.S.G.S. professional paper 1270 levels of background to rule out that our proposed background levels do not exceed those already published.

Response

Concentrations of inorganics can vary widely which is why site-specific results, when available, will supersede regional published values. Our PAGs will be based on the site-specific results.

Comment 6

Ref. 6.3.2: Reference to a prior risk assessment is questionable. State the source of the prior risk assessment and rule out that it is less stringent than current risk assessment standards (EPA/903/R-93-0001) required in section 10.

Response

The source of the prior risk assessment is identified as being after the SI. Reviewing previous risk assessments to determine if they comply with current guidelines is not recommended as this would imply that all previous decisions are subject to review and change based on current guidelines.

Comment 7

Ref. fig. 6.11: Relocate soil and groundwater sample points at the fuel dispensing stands to the edge of the pavement where spill runoff has collected.

Response

Sample points will be relocated in the field as required.

Comment 8

Ref. 9.8: Your discussions on state ARARs for soil and groundwater is incomplete. Given OAR 340-122-427 (1) and 340-40-030 (3) (a) regarding soil and groundwater, respectively, the state reserves the right to establish cleanup levels above background based on case by case oversight of risk assessments. Without oversight and subsequent approval, you cannot claim that there is any cleanup level established, at the present, or other than background.

This comment has been sent previously, in writing, dated 9 AUG 95 and confirmed verbally with DEQ, voluntary cleanup division, Mike Rosen. Please rewrite your discussion accordingly.

Response

We agree with the comment. However, at the Remedial Investigation stage development of ARARs consists largely of identifying and listing all potential requirements. ARARs are interactively evaluated throughout the CERCLA process, with input from many stakeholders. Not until development of remedial alternatives in the Feasibility Study are they conclusively identified for each proposed alternative. Therefore, language in Section 9 consistently refers to the different Standards as potential ARARs that will be considered for setting cleanup levels. There is no claim that cleanup levels have been established. We have provided the lists of Standards that will be considered in developing cleanup levels as is appropriate at this stage of the CERCLA process. (See also CERCLA Compliance with Other Laws Manual, Draft Guidance, EPA/540/G-89/89/006, August 8, 1988 page xv).

Comment 9

Ref. 11.1: Base wash racks can only be u sed if soil is brushed off, further removed with compressed air, and collected prior to arrival at the wash rack.

Response

Base wash racks will not be used for equipment decontamination. A staging area where we can set up a decon pad that will allow us to containerize all cuttings and liquid wastes is required.

Comment 10

Ref. 13: The following is a repeat of a prior comment. It is important that the generator (HAZWRAP) perform all the functions call out in this comment to insure that proper waste determinations/classifications are made:

DISPOSAL OPTION	CHARACTERIZATION METHOD
Return to Sampling Point	If analytical results for all sample elevations are ≤ surface background, then soil/groundwater can be returned to the surface sampling point.
Discharge to Sanitary Sewer	Batch Discharge Permit Requirements: pH, BOD, TSS.
Dispose of in Controlled Sanitary Landfill (Sanifill)	Complete attached "Generator's Special Waste Profile Sheet" by HAZWRAP. Signature by OANG personnel.
Dispose of in EPA TSD as Hazardous Waste	Complete attached "Hazardous Waste Profile Sheet" by HAZWRAP. Signature by ORANG personnel.

Response

The revised Section 13 was an attempt to comply with this comment while providing a simple flow diagram for field personnel to follow. Note that most of the soil cuttings will be generated during background monitoring well installation and samples from these soils will be used to establish background levels; these levels have not been determined. In order to determine how these cuttings would be handled we decided to compare values with EPA RBCs. If concentrations are below these levels the soils should not pose a threat to human health or the environment and surface disposal would be appropriate.

Groundwater background values have also not yet been established. Since most of the water will be generated while determining these values, we recommend sampling all water for the Sanitary Sewer Discharge Requirements and disposing of the water into the Sanitary Sewer

if possible. We will work closely with the Base and regulatory authorities to ensure we analyze water samples for the required analyses for making this determination.

All required paperwork for disposal of investigation derived waste will be completed by HAZWRAP for signature by the Base. Please note that the Base is the waste generator.

Calculation of Project Action Goals (Background Levels)

The following text outlines the steps necessary to determine the 95% upper tolerance limit on the background data set and the steps for comparison to background for elimination of analytes from the list of chemicals of potential concern at a site.

1. Evaluate detection limits prior to the calculation of any statistics for the background data to ensure that they are of an acceptable level for risk assessment. Also, an attempt should be made to evaluate outliers (data points that are extreme values and that do not ppear to to belong to the background distribution) and if justified, to eliminate the outliers from the background distribution prior to the calculation of the background UTL concentration.

2. Determine an upper 95% tolerance limit (UTL) concentration with 95% coverage for the distribution of the appropriate background data.

   A. Calculate the UTL concentration form the background data based on the best-fit distribution and the frequency of detection. There are three categories of data based on the frequency of detection:

   - Frequency of detection is $\geq$ 50%
   - Frequency of detection is between 0% and 50%
   - Frequency of detection is 0% (all nondetects)

   B. When the frequency of detection is $\geq$ 50%, calculate the UTL concentration according to the best-fit distribution for each analyte (normal or lognormal distribution):

      a) Test the hypothesis that the data are normally distributed using a 95% level of confidence.

      b) Test the hypothesis that the data are lognormally distributed using a 95% level of confidence.

      c) Choose the best-fit distribution based on results from (a) and (b) above.

   C. When the frequency of detection if between 0% and 50%, there is very little confidence that the background distribution can be adequately characterized (since more than half of the data points are probably reported as quantitation limits). In this situation, use the 99th percentile of the background data as teh "cutoff" for determining if the site data are above background.

   D. When the frequency of detection is 0% (all nondetects - less than the reported quantitation limit), use the largest reported quantitation limit as the "cutoff" for determining if the site data are above background.

Calculating the UTL Concentration

1) Parametric Calculation

a) *Normal*: $UTL = \bar{x} + k(s_x)$

where:

$\bar{x}$ =arithmetic mean of the background data,
k =appropriate tolerance factor for one-sided tolerance intervals (based on sample size), and
s_x =standard deviation of the background concentrations.

b) *Lognormal*: $UTL = \exp [\bar{y} + k(s_y)]$

where:

exp = e (2.718281828),
$\bar{y}$ =arithmetic mean of the logs of the background data,
k =appropriate tolerance factor for one-sided tolerance intervals (based on sample size), and
s_y =standard deviation of the logs of the background concentrations.

2) Nonparametric Calculation

For sample sizes ≤59, the nonparametric UTL concentration = maximum detected concentration (Walpole and Myers 1978).

Parameters can be found in standard statistical texts, such as "Statistical Methods for Environmental Pollution Monitoring" by Richard O. Gilbert.

3. After calculating the UTL concentration, compare the UTL concentration to the maximum detected background concentration; use the smaller of these two concentrations as the "cutoff" for determining if site data are above background. If any single detected cocnentration from the site is above the background UTL concentration, then there is evidence that the site data's distribution is different from the background data's distribution. Analytes that have all detected concentrations at or below the background UTL concentration can be eliminated from the list of chemicals of potential concern, based on comparison to background.

Installation Restoration Program
Final Feasibility Study

142nd Fighter Wing
Portland Air National Guard Base
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July 2001

Air National Guard
Andrews AFB, Maryland

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ACRONYMS/ABBREVIATIONS

Acronyms / Abbreviations	Definitions
AGE	Aerospace Ground Equipment
ANGB	Air National Guard Base
ANG / CEVR	Air National Guard / Installation Restoration Program Branch
ANG	Air National Guard
ARAR	Applicable or relevant and appropriate requirement
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
cis-1,2-DCE	cis-1,2-Dichloroethene
COC	Contaminant of concern
CRSA	Columbia River Sand Aquifer
ODEQ	Oregon State Department of Environmental Quality
DNAPL	Dense non-aqueous phase liquid
EE / CA	Engineering Evaluation / Cost Analysis
ERM	Environmental Resources Management
FS	Feasibility Study
GRC	Groundwater Reference Concentration
HI	Hazard index
HMTC	Hazardous Materials Technical Center
IRAC	Interim Remedial Action Construction
IRP	Installation Restoration Program
µg / l	Micrograms per liter
LOF	Locality of the Facility
MASC	Maximum Allowable Soil Concentration
MCL	Maximum Contaminant Level
mg / kg	Milligrams per kilogram
MNA	Monitored natural attenuation
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OAR	Oregon Administrative Rules

ACRONYMS/ABBREVIATIONS

Acronyms / Abbreviations	Definitions
ODEQ	Oregon State Department of Environmental Quality
OpTech	Operational Technologies Corporation
ORC	Oxygen Release Compound
O&M	Operation and maintenance
PA	Preliminary Assessment
PAH	Polynuclear aromatic hydrocarbon
PCE	Tetrachloroethylene
pH	Acidity / alkalinity
PIA	Portland International Airport
POL	Petroleum, oil, and lubricants
POTW	Publicly-owned treatment works
PRG	Preliminary remediation goal
PSG	Project screening goal
QC	Quality control
RAO	Remedial action objective
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI / FS	Remedial Investigation / Feasibility Study
RI / DGE	Remedial Investigation / Data Gap Evaluation
RRA	Residual Risk Assessment
SAIC	Science Applications International Corporation
SCL	Soil Cleanup Level
SI	Site Investigation
SVE	Soil vapor extraction
SVOC	Semivolatile organic compound
TCE	Trichloroethene
TGA	Troutdale Gravel Aquifer
TPH	Total petroleum hydrocarbon
TMV	Toxicity, mobility, or volume
UIC	Underground Injection Control
USEPA	United States Environmental Protection Agency

ACRONYMS/ABBREVIATIONS

Acronyms / Abbreviations	Definitions
UST	Underground storage tank
VC	Vinyl chloride
VOC	Volatile organic compound
WEA	Western Expansion Area
1,2-dichloroethene	1,2-DCA

EXECUTIVE SUMMARY

This Feasibility Study (FS) report has been prepared for the 142nd Fighter Wing, Portland Air National Guard Base (Portland ANGB) in Portland, Oregon as part of the ongoing Remedial Investigation/Feasibility Study process.

The development of an FS represents a critical phase in the environmental investigation and cleanup process and is required when risk to human health or the environment exceeds acceptable levels. The FS report describes the process in which remedial action alternatives are developed, evaluated, and selected.

The remedy selection process ensures that statutory and administrative rule requirements are met, provides the public with a foundation on which to provide comments regarding proposed remedies, and allows regulatory agencies the ability to select or approve the most appropriate remedy for sites at which a release of a hazardous substance(s) has occurred.

The primary objectives of this FS were to:

- Develop, screen, and evaluate remedial alternatives for addressing contaminants in soil and groundwater at the Portland ANGB that may pose a threat to human health or the environment; and

- Recommend the most technically appropriate and cost-effective remedial alternatives that adequately protect human health and welfare and the environment.

The structure for this FS Report has been adapted from several formats recommended by Air National Guard (ANG), United States Environmental Protection Agency (USEPA), and Oregon State Department of Environmental Quality (ODEQ) guidance documents. The ANG includes a recommended FS structure in the document entitled, *Final Air National Guard Installation Restoration Program Investigation Protocol* (ANG 1998). The USEPA document, *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (USEPA 1988), is the most widely used and referenced guidance for the production of Remedial Investigation (RI) and FS documents. The State of Oregon document entitled, *Final Guidance for Conducting Feasibility Studies* (ODEQ 1998b), generally follows the process specified in the USEPA Guidance,

with certain variations and additional requirements. Additional requirements set by ODEQ include the evaluation of beneficial-use scenarios and hot spots.

The FS was primarily based on the cumulative results of environmental investigations conducted at the Portland ANGB between 1987 and 2000, as fully documented in the RI Report (Environmental Resources Management 2001a). These investigations identified contaminants in soil, sediment, groundwater, and surface water at 10 different Installation Restoration Program (IRP) sites at the Portland ANGB. Based on the investigation results, as well as a baseline risk assessment performed during the RI, three of the 10 IRP sites (IRP Sites 2, 9, and, 11) were determined to require full evaluation in this FS based on volatile organic compounds (VOCs) in groundwater at concentrations that pose unacceptable risk to human health.

Based on the results of the RI and on guidance provided by USEPA and ODEQ, remedial alternatives were identified and developed for each IRP site selected for further evaluation. The alternatives were then compared and evaluated as the basis for recommending the final remediation alternative for the IRP sites.

Development of Remedial Action Objectives (RAOs): RAOs provide specific goals for each affected media (i.e., soil, groundwater, etc.) at the IRP sites requiring additional remediation. These goals are typically based on achievement of a specified cleanup level or specified acceptable risk level. The RAOs for the Portland ANGB are:

- Prevent off-site migration of groundwater containing VOCs above 10^{-6} risk concentrations for individual carcinogens;
- Treat groundwater hot spots of contamination to concentrations below respective significant adverse-effect levels; and
- Prevent on-site exposure to groundwater containing VOCs above 10^{-6} risk concentrations for individual carcinogens.

Development of General Response Actions: General response actions are broadly defined as measures designed to prevent or minimize adverse environmental impacts to satisfy the RAOs. The general response actions developed for remediation of groundwater at IRP Sites 2, 9, and 11 include:

- No action;

- Institutional controls;
- Engineering controls;
- Groundwater collection, treatment, and discharge; and
- In situ groundwater treatment.

Identification and Screening of Technologies: Technologies considered capable of achieving the RAOs were identified and "screened" for further evaluation as feasible remedial alternatives. The technologies selected for further assessment were:

- No action;
- Monitoring;
- Land / Water use restrictions;
- Construction controls;
- Alternative water supplies;
- Groundwater extraction;
- In situ chemical treatment;
- In situ biological treatment;
- In situ physical treatment; and
- Monitored natural attenuation.

Development of Remedial Alternatives: Using the RAOs, general response actions, and technologies selected for further evaluation, six remedial alternatives were developed for evaluation and comparison. These alternatives included:

- *Alternative 1 – No Action.* The FS process requires consideration of the No Action Alternative. Under this alternative, no site modifications or monitoring would be implemented to prevent or eliminate human health and environmental risks.
- *Alternative 2 – Monitored Natural Attenuation.* The use of monitored natural attenuation to achieve remedial objectives relies on biological, physical, and chemical processes occurring in the environment without

artificial stimulus. Monitoring and documenting the intrinsic bioremediation element of natural attenuation is the major focus of this alternative. Under this alternative, active treatment measures would not be taken.

- *Alternative 3 – In Situ Oxidation – Potassium Permanganate/Sodium Persulfate Injection with Monitored Natural Attenuation.* This alternative involves the injection of a solution of either potassium permanganate to treat chlorinated VOCs, or sodium persulfate to treat benzene, into the contaminated zone. These materials are strong oxidants that have been shown to effectively destroy VOCs. This alternative also includes the use of monitored natural attenuation in areas with low levels of VOCs.

- *Alternative 4 – In Situ Oxidation – Ozonation with Monitored Natural Attenuation.* Ozonation involves the injection of a mixture of air and ozone gas at the bottom of the saturated zone to be treated. Ozone is a strong oxidant that has been shown to rapidly destroy VOCs. This alternative also includes the use of monitored natural attenuation in areas with low levels of VOCs.

- *Alternative 5 – Enhanced Bioremediation with Monitored Natural Attenuation.* Enhanced bioremediation involves the injection of a material that stimulates the natural biological activity of the contaminated zone. This alternative also includes the use of monitored natural attenuation in areas with low levels of VOCs.

- *Alternative 6 – In-Well Aeration with Monitored Natural Attenuation.* In-well aeration involves performing stripping of VOCs within a treatment well. Within each aerator well, water is pumped from a lower screen to the upper section of the well where it is sparged with air. The sparged water is then allowed to flow back into the soil through an upper well screen. This alternative also includes the use of monitored natural attenuation in areas with low levels of VOCs.

Each remedial alternative was evaluated for IRP Sites 2, 9, and 11. A conceptual design for each alternative at each IRP site was performed for cost estimating purposes. A detailed analysis of the remedial alternatives for the various IRP sites was performed in accordance with USEPA and ODEQ FS guidance. The criteria used for this evaluation included the overall protectiveness of human health and the environment; compliance with applicable, relevant, and appropriate requirements; long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability;

reasonableness of cost; and treatment of hot spots. Following an evaluation of each alternative against the above criteria, the alternatives for the individual IRP sites were then compared.

As a result of the evaluation and comparison process, it was determined that Alternative 3, in situ oxidation using potassium permanganate combined with monitored natural attenuation, is the preferred remedial alternative for IRP Site 2. A variation of Alternative 3, using sodium persulfate rather than potassium permanganate, was selected as the preferred remedial alternative for IRP Site 9. Alternative 3 was also selected as the preferred alternative at IRP Site 11. The selection of these alternatives was based on several evaluation criteria, including the level of protectiveness of human health and the environment, effectiveness, cost reasonableness, and implementability. The preferred alternatives for IRP Sites 2, 9, and 11, as described above, best satisfy the FS evaluation criteria.

SECTION 1.0

INTRODUCTION

This Feasibility Study (FS) report has been prepared for the 142nd Fighter Wing, Portland Air National Guard Base (Portland ANGB) in Portland, Oregon as part of the ongoing Remedial Investigation/Feasibility Study (RI/FS) process. The location of the Portland ANGB is shown on Figure 1-1. The FS was conducted as part of the Air National Guard (ANG) Installation Restoration Program (IRP) under contract DAHA-90-94-D-0014 between Environmental Resources Management (ERM) and the National Guard Bureau, Department of the Army and the Air Force. The Air National Guard/Installation Restoration Program Branch (ANG/CEVR) is providing technical and project management oversight for this study on behalf of the ANG.

1.1 Purpose and Objective

The development of an FS represents a critical phase in the environmental investigation and cleanup process. As shown on Figure 1-2, the FS is a critical component of this process and is required when risk to human health or the environment exceeds acceptable levels. The FS report describes the process in which remedial action (RA) alternatives are developed, evaluated, and selected.

The remedy selection process outlined in this FS ensures that statutory and administrative rule requirements are met, provides the public with a foundation on which to provide comments on proposed remedies, and allows regulatory agencies the ability to select or approve the most appropriate remedy for sites at which a release of hazardous substances has occurred.

The primary objectives of the FS are:

- Develop and evaluate remedial alternatives for addressing contaminants in soil and groundwater at the Portland ANGB that may pose a threat to human health or the environment; and

Source: Portland Air National Guard Base Masterplan, May 1997

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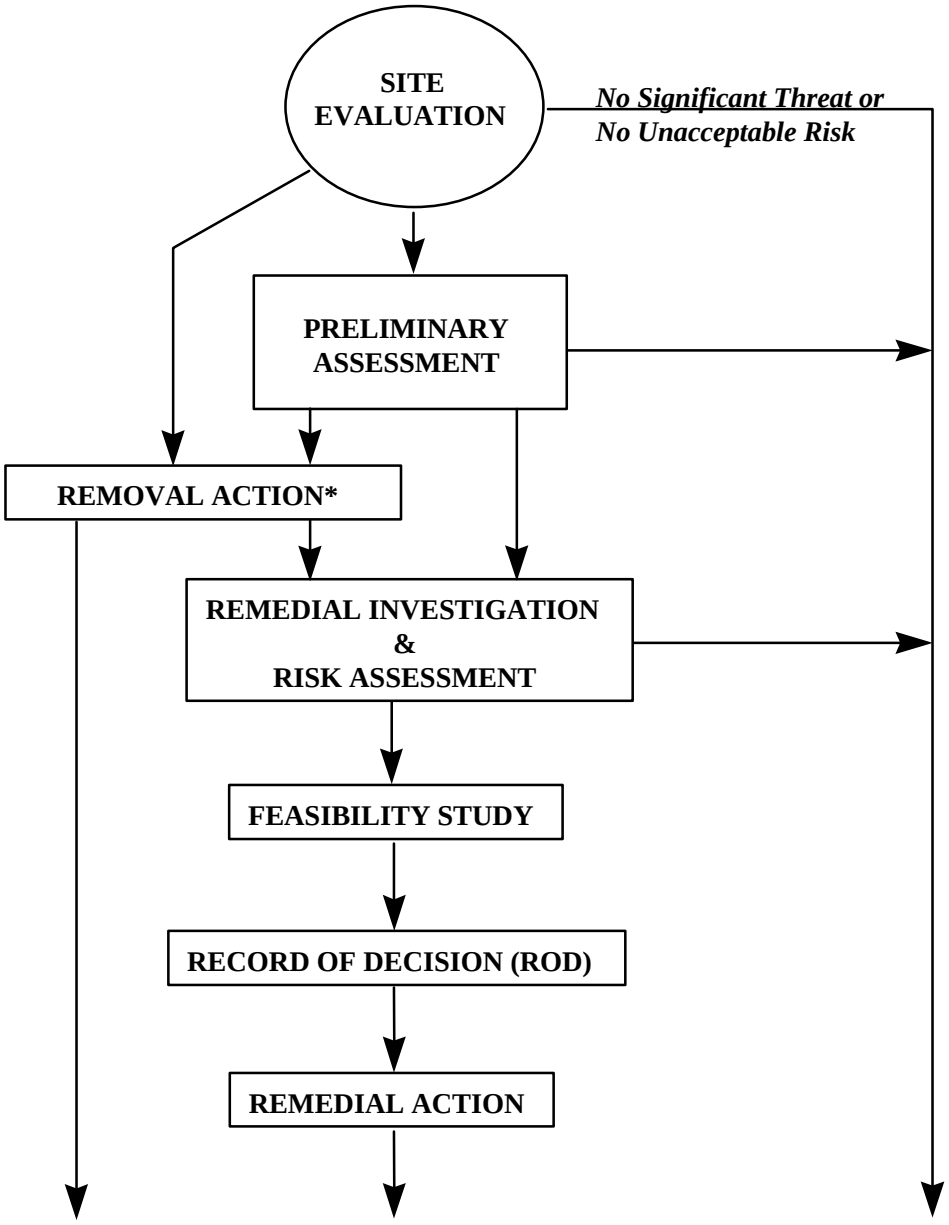
LOCATION OF PORTLAND AIR NATIONAL GUARD BASE PORTLAND, OREGON

142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 1-1



*Removal actions may be taken at any step of the environmental cleanup process prior to issuance of a Record of Decision (ROD).
Adapted from ODEQ Guidance for Conducting Feasibility Studies.

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ENVIRONMENTAL INVESTIGATION AND CLEANUP PROCESS

142nd FW, PORTLAND ANGB
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PORTLAND, OREGON

FIGURE 1-2

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- Recommend the most technically appropriate and cost-effective remedial alternatives that adequately protect human health, welfare, and the environment.

1.2 Feasibility Study Guidance

The structure for this FS report is a blend of formats recommended by ANG/CEVR, United States Environmental Protection Agency (USEPA), and Oregon State Department of Environmental Quality (ODEQ) guidance documents. ANG includes a recommended FS structure in the document entitled, *Final Air National Guard Installation Restoration Program Investigation Protocol* (ANG 1998). The USEPA document, *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (USEPA 1988), is the most widely used and referenced guidance for the production of Remedial Investigation (RI) and FS documents. The State of Oregon document entitled, *Final Guidance for Conducting Feasibility Studies* (ODEQ 1998b), generally follows the process specified in the USEPA Guidance with certain variations and additional requirements. The additional requirements set by ODEQ include the evaluation of beneficial-use scenarios and hot spots of contamination. Although the ODEQ uses different terminology than the USEPA to identify its criteria for the evaluation of remedial alternatives, both sets of standards are substantively similar.

Adjustments to the formats set by the three guidance documents described above were necessary to accommodate the inclusion of multiple IRP sites in one FS document. Beneficial-use scenarios were evaluated in the RI and summarized in Section 2.10 of this FS and used to delineate the Locality of the Facility (LOF), as required by the *Final Guidance for Conducting Beneficial Water Use Determinations at Environmental Cleanup Sites* (ODEQ 1998a). Based on the beneficial-use scenarios, the potential existence of hot spots of contamination was also evaluated in the RI, based on the ODEQ document, *Final Guidance for Identification of Hot Spots* (ODEQ 1998c), and summarized in Section 2.11 of this FS. The evaluation criteria used to compare remedial alternatives follow the USEPA guidance with the inclusion of substantive additions required by ODEQ. In accordance, the evaluation criteria, Treatment of Hot Spots, required by ODEQ was added to the list of evaluation criteria used.

1.3 Organization of Feasibility Study

The specific elements of the FS, as described in ODEQ Guidance, are diagrammed on Figure 1-3. The organization of this FS follows the main principles of this structure. This organization consists of six sections and six appendices. The contents of these sections are as follows:

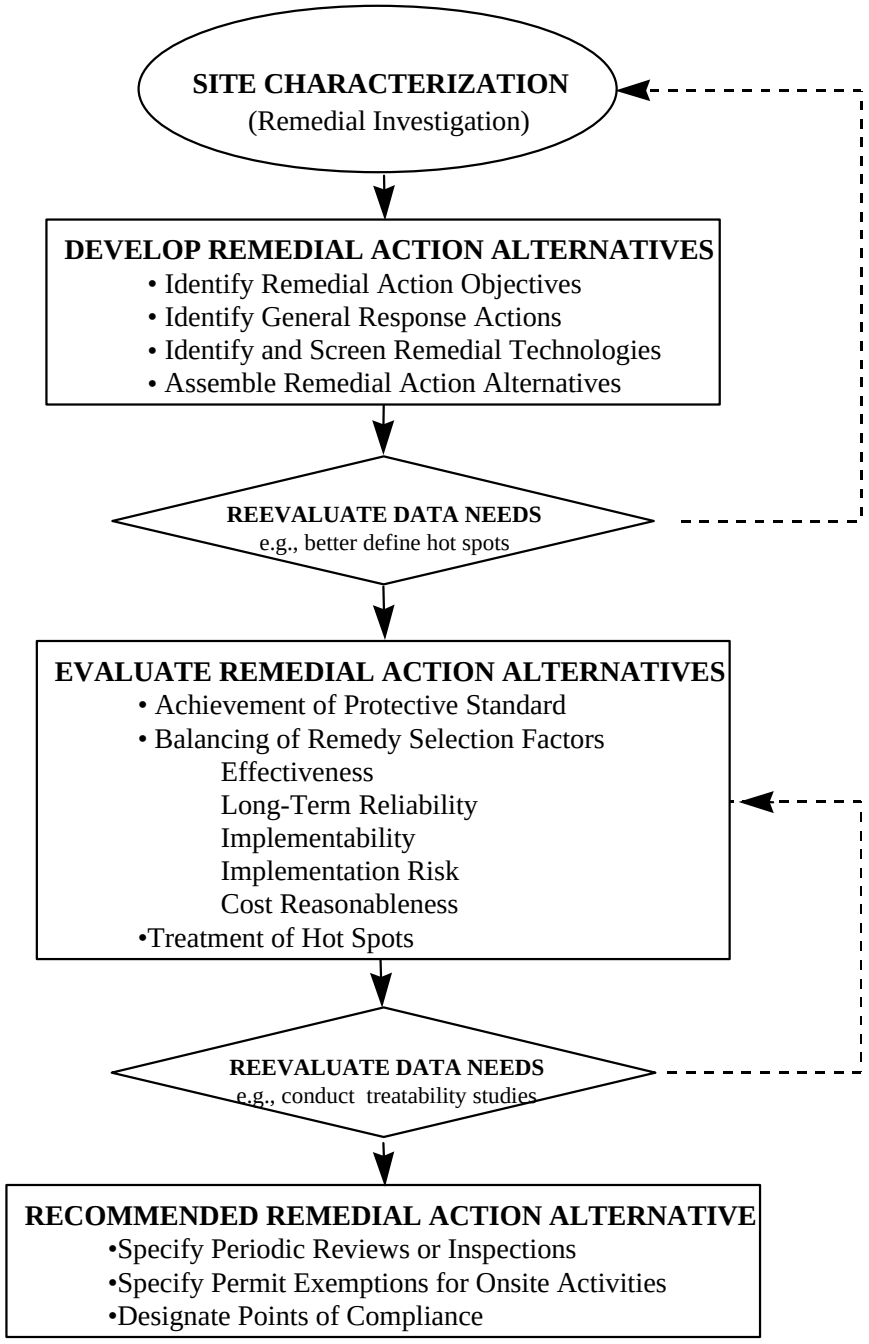
- Section 1.0 presents the purpose and objective for the FS. This section also discusses the guidance documents used to select a format for this FS and a description of the elements of that format.

- Section 2.0 presents background information regarding the Portland ANGB, including a brief history and description of the Base, and a brief discussion of land use, topography, climate, sensitive receptors, geology, hydrogeology, previous environmental activity, and current IRP activities.

- Section 3.0 presents a description of each IRP site at the Portland ANGB. This description includes results of the RI that are relevant to the FS process. This information includes history and use of the site, waste disposal history, nature and extent of contamination, risk assessment results, and recommendations. The recommendations made for each IRP site presented in this section discuss the way that the individual IRP sites are treated in the FS. No further action is recommended at some IRP sites, and other IRP sites are recommended for further evaluation in this FS report.

- Section 4.0 describes the process used to develop remedial alternatives for the Portland ANGB. A discussion of the remedial action objectives (RAOs) is provided, along with a list of general response actions that includes categories of technologies expected to meet the RAOs. A series of remedial alternatives are subsequently outlined, which are based on combinations of technologies described under the general response actions.

- Section 5.0 presents a detailed analysis of the remedial alternatives for the various IRP sites. In accordance with the USEPA and ODEQ FS guidance documents, the assessment criteria used to evaluate each remedial alternative is first summarized in this section. Following an evaluation of each alternative, a comparative analysis is presented with a subsequent discussion of the preferred alternative.



Adapted from ODEQ Guidance for Conducting Feasibility Studies.

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ELEMENTS OF THE FEASIBILITY STUDY

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FIGURE 1-3

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- Section 6.0 presents a summary of the recommended RA alternatives for IRP Sites 2, 9, and 11, as well as a summary of the recommendations for the IRP sites not evaluated in Section 5.0. This section also includes a residual risk assessment. This assessment is used to determine the hypothetical risk remaining after completion of the recommended RA alternative at IRP Sites 2, 9, and 11.

- Section 7.0 lists the documents referenced for this FS.

A description of the appendices included as attachments to this document is provided as follows:

- Appendix A presents a description of the IRP process and fundamentals of the RI/FS program presented above and is intended to familiarize the reader with the purpose and structure of FS documents.

- Appendix B includes tables containing cost estimates for the selected remedial alternatives, including the calculations on which these estimates are based.

SECTION 2.0

PORTLAND ANGB DESCRIPTION

The Portland ANGB is immediately south of the Portland International Airport (PIA) in Portland, Oregon, between the Columbia River to the north and the Columbia Slough to the south (Figure 1-1).

The 142nd Fighter Wing is an active unit with a full-time contingency of F-15 fighter planes, crews, and support units, including active-duty ANG personnel. The major support operations at the Portland ANGB that use and dispose of hazardous wastes/materials include aircraft, vehicle, and equipment maintenance; facilities maintenance; and Petroleum, Oil, and Lubricants (POL) management. These activities generate varying quantities of waste oils, recovered fuels, and spent cleaners, solvents, and acids.

2.1 Base History

Site development began in 1936 with the placement of a large quantity of dredge material as fill in various portions of the subject property (Guthrie Slusarenko Associates 1986). The 142nd Fighter Wing began operations in 1941 at the present location of the Portland ANGB, which functioned as an Army Air Base until 1945. The Base was converted to an ANG facility in approximately 1947. Between 1950 and 1964 it was an active Air Force Base; in 1964 the Base was converted back to an ANG facility and has maintained this status to the present time (Science Applications International Corporation [SAIC] 1991).

2.2 Land Use

The Base occupies approximately 245 acres of land leased from the Port of Portland. It is bordered on the west by the Riverside Country Club and the Peninsula Drainage Canal. The areas south and east of the Base are zoned for residential, industrial, and commercial use. A City of Portland municipal well field (Columbia South Shore Well Field) is southeast of the Base (Figure 1-1); the western boundary of the well field is approximately

1 mile from the Base. All of the IRP sites are within the Portland ANGB boundary, with the exception of IRP Site 7 (Burn Pit Area), which straddles the eastern Base boundary. A portion of IRP Site 7 is on Port of Portland property. Figure 2-1 shows the location of the IRP sites at the Portland ANGB. A beneficial land use description is presented in Section 2.10.4.

Land use at the Portland ANGB is industrial. Activities conducted at the Base are consistent with military base or airport usage. ANG leases the land from the Port of Portland, which operates the PIA. The Port of Portland has no plans to change the industrial land use at the Base if ANG vacates the facility (Port of Portland 2000). An expansion of the existing PIA onto the space currently occupied by the Base is the most likely scenario (Port of Portland 2000).

2.3 Topography

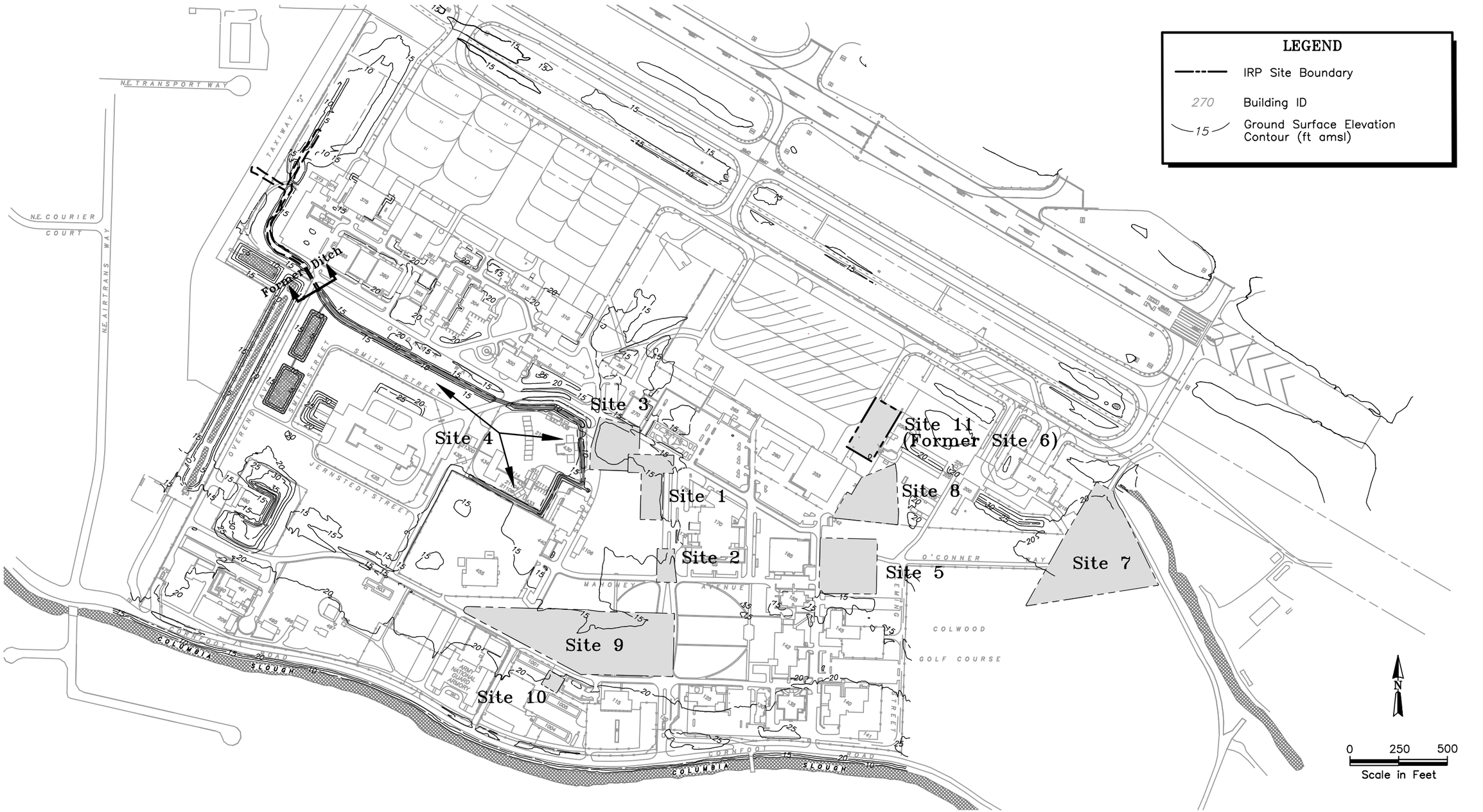
The Portland ANGB is situated on the Columbia River Floodplain. The ground surface across the Base is relatively flat and varies in elevation from approximately 10 to 20 feet above mean sea level. The 100-year floodplain elevation for the area surrounding the Base is 14 feet above mean sea level.

2.4 Climate

The climate in the Portland area is characterized by mild rainy winters and warm-to-hot, dry summers. Approximately 88 percent of the total annual rainfall occurs between October and May. The mean annual temperature is about 53 degrees Fahrenheit (°F), with winters averaging 40 to 50 °F and summers averaging 60 to 70 °F (SAIC 1991). The mean total annual precipitation at the PIA is 37.20 inches. The mean net annual precipitation, calculated by subtracting the mean evapotranspiration from the mean total precipitation, is 13.81 inches (Hazardous Materials Technical Center [HMTC] 1987).

2.5 Ecological Receptors

No endangered or threatened fauna or flora were identified within 1 mile of the Portland ANGB during the Preliminary Assessment (PA)



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IRP SITE LOCATION MAP

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FIGURE 2-1

(HMTC 1987). However, large, open-space, grassland areas associated with the PIA complex provide some habitat for wildlife (Hoffman et al. 1996). The wildlife includes small mammals, songbirds, and raptors. Raptors have been observed along the Main Drainage Ditch and the Columbia Slough (SAIC 1991).

A more recent environmental impact statement completed in the vicinity of the PIA identified no threatened, endangered, or sensitive plants in the area. The only threatened, endangered, or sensitive wildlife observed include the peregrine falcon and the bald eagle (United States Department of Transportation 1998). These two species are transitory near the airport.

A Level I scoping ecological risk assessment of the IRP study area was conducted on 12 and 15 September 2000. This scoping assessment was a qualitative determination of the existence of ecological receptors and/or exposure pathways at each of the ten IRP sites. The full qualitative analysis of potential ecological risks is presented in the Site Ecology Scoping Report (ERM 2001a, Appendix CC).

The results of the Level 1 scoping assessment indicated that eight of the ten IRP sites contain no ecological receptors or exposure pathways. These sites are currently covered by asphalt/concrete pavement, gravel, and/or landscaped grassland, and no aquatic habitats (i.e., storm ditches, wetlands, or streams) occur within the immediate vicinity of the sites. The remaining two sites (Sites 4 and 7) contain potential ecological receptors and exposure pathways; however, ecological risks are not suspected at these sites under current conditions due to the limited contamination and the lack of sensitive ecological receptors (i.e., threatened and endangered species and the respective habitats for either species). To verify the lack of potential impacts to ecological receptors at IRP Site 4, the ANG plans to conduct a Level II (screening) ecological risk assessment in accordance with ODEQ guidance.

2.6 Geology

2.6.1 Regional Geology

The northeastern Portland area is underlain by Tertiary and Quaternary sedimentary and volcanic deposits. The Portland ANGB is in the central portion of the Portland Basin, a northwest-southeast trending structural depression that was formed in the early Tertiary and filled with

approximately 1,800 feet of late Tertiary and Quaternary sediments. In ascending order, the basin deposits in the vicinity of the Portland ANGB include Eocene and Miocene rocks, the Sandy River Mudstone, the Troutdale Formation, the Parkrose Formation, the Troutdale Gravel, the Columbia River Sand, and Pleistocene to Recent Alluvium (Hartford and McFarland 1989). The Final RI report (ERM 2001a) describes the geology of the Portland ANGB in detail.

Sediments encountered in borings drilled at the Portland ANGB include Pleistocene to Recent Alluvium and the Columbia River Sand. In the area of the Base and the Portland well field, these sediments have been divided into two distinct hydrogeologic units: the Floodplain Deposits and the Columbia River Sand Aquifer (CRSA). A fence diagram constructed from the cross sections is shown on Figure 2-2.

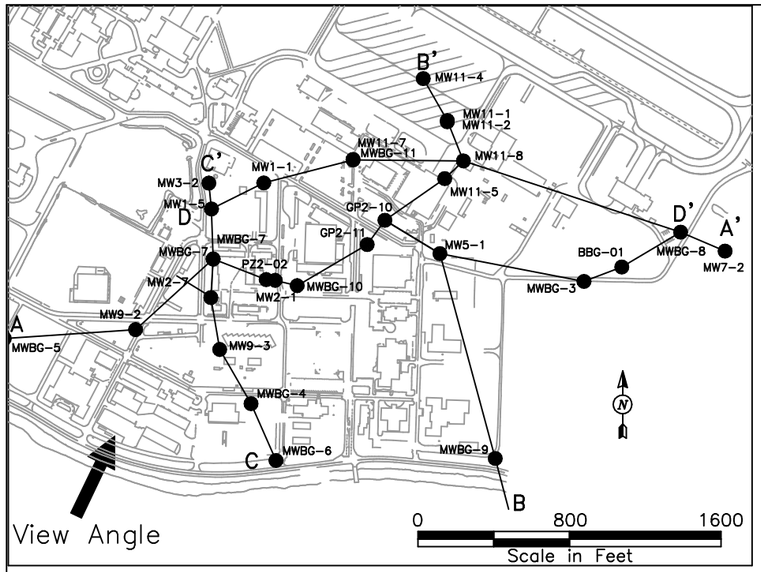
Most of the original surface soils at the Portland ANGB have been altered by regrading or construction activities, or have been covered by fill. Original native soils in the area include Pilchuck and Sauvie-Rafton soils. Pilchuck soils, consisting of dark, grayish-brown to dark brown soil with high permeability, underlie most of the Base. Sauvie-Rafton soils, consisting of poorly drained, silty loam soil, are present in the southeast corner of the Base. The surficial soil at the Base is approximately 15 inches thick and is underlain by a dark brown, silty loam to a depth of about 60 inches. A soils map for the Portland ANGB is included on Figure 2-3.

2.6.2 Hydrogeology

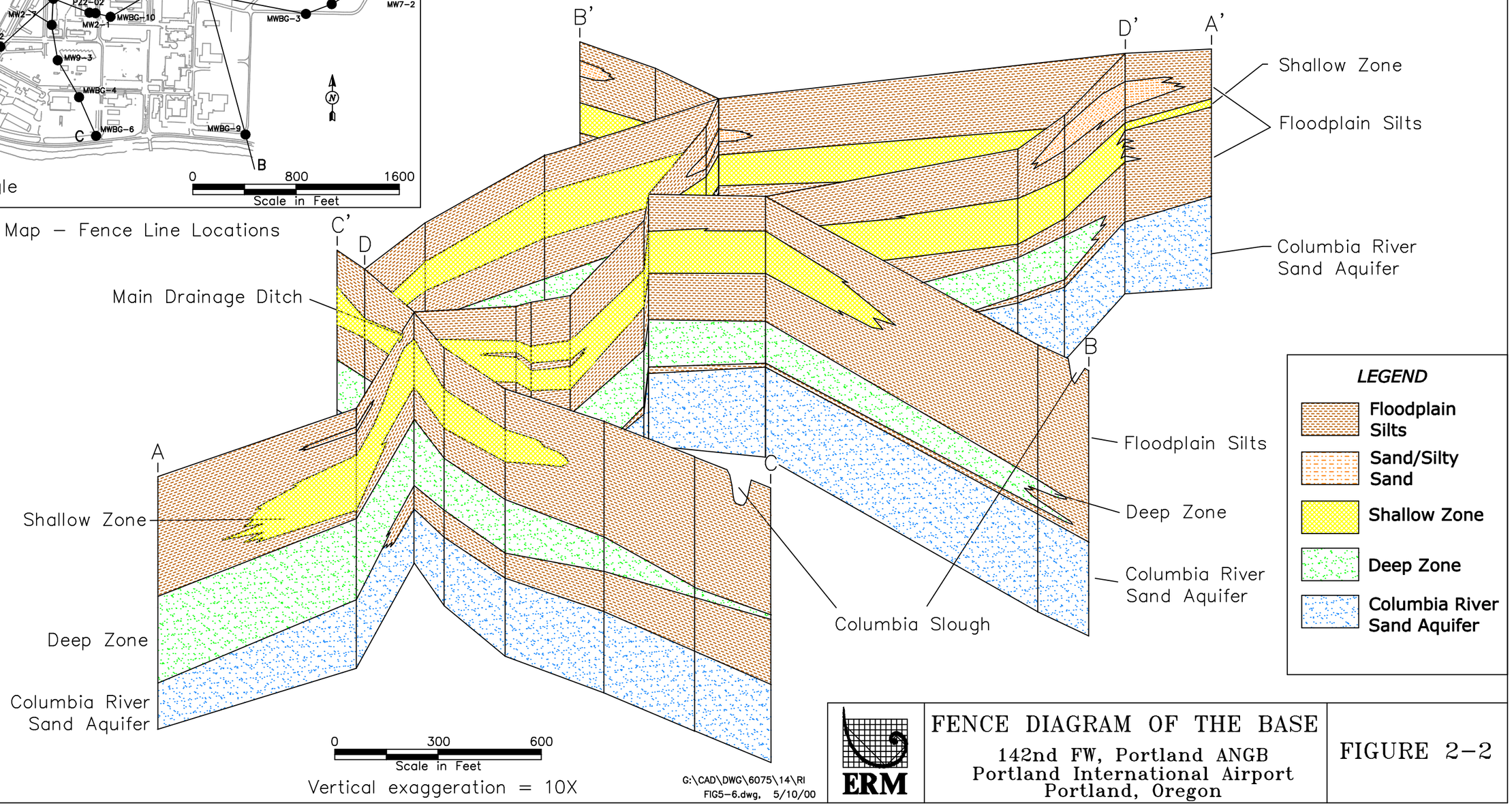
At the Portland ANGB, the Floodplain Deposits extend from the ground surface to depths ranging from approximately 48 to 60 feet below ground surface (bgs). Water-bearing zones within these Floodplain Deposits consist of, in descending order, the Upper Zone, the Shallow Zone, and the Deep Zone. A generalized hydrogeologic cross section for the Portland ANGB is shown on Figure 2-4. A conceptual hydrogeologic model for the Base and the surrounding area is presented on Figure 2-5.

2.6.2.1 Upper Zone

The Upper Zone is a discontinuous, unconfined to semi-confined water-bearing zone that is present at scattered locations in the northern, eastern, and southwestern portions of the Portland ANGB. It consists of brown, well-sorted, fine sand in the eastern portion of the Base, and silty to fine sand in the southwestern and northern portions of the Base. The Upper depths ranging from 5.5 to 9.0 feet bgs, and in thickness ranging from 1 to



Site Map – Fence Line Locations



LEGEND

- Floodplain Silts
- Sand/Silty Sand
- Shallow Zone
- Deep Zone
- Columbia River Sand Aquifer

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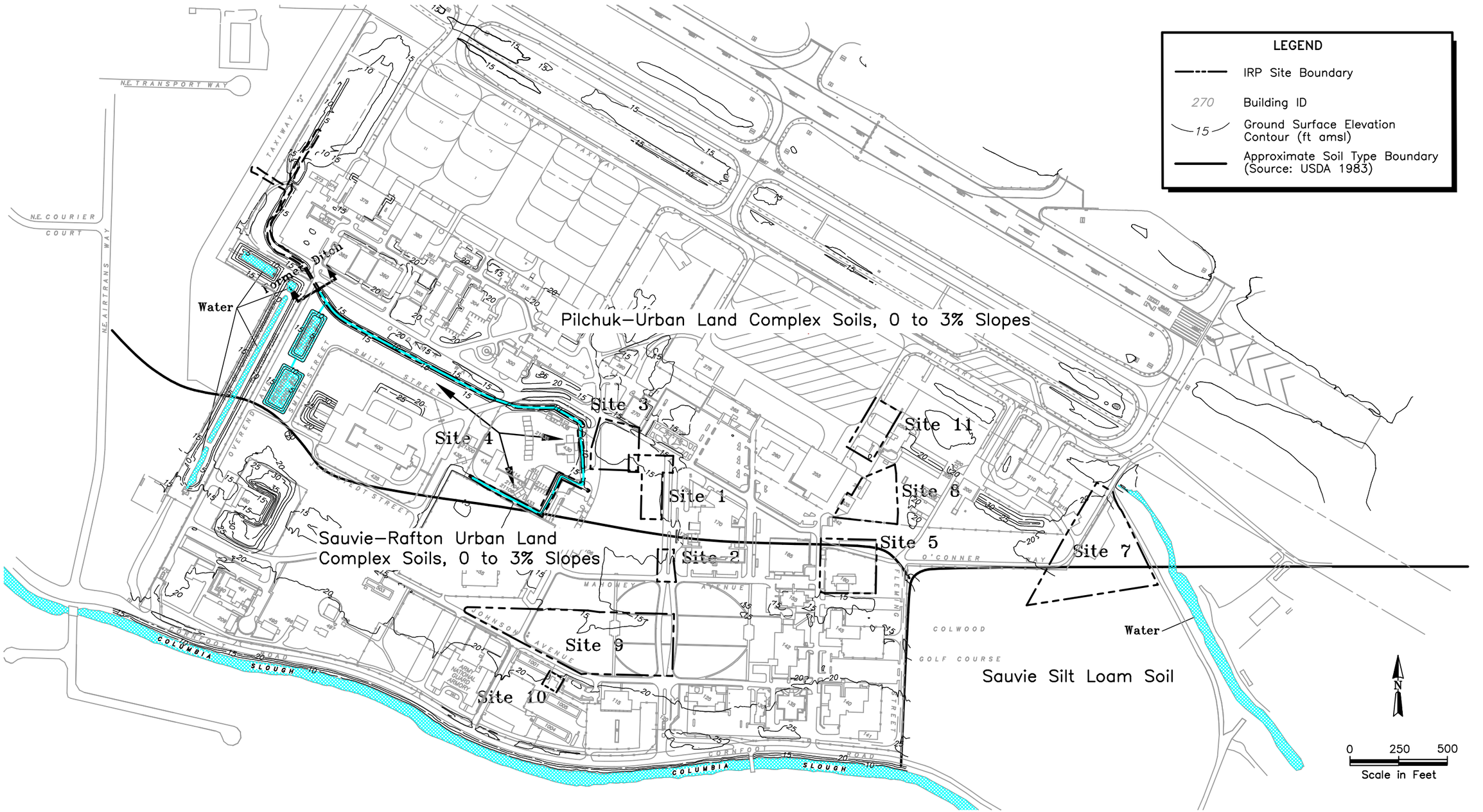
FENCE DIAGRAM OF THE BASE

142nd FW, Portland ANGB
Portland International Airport
Portland, Oregon

FIGURE 2-2



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SOILS MAP

142nd FW, PORTLAND ANGB
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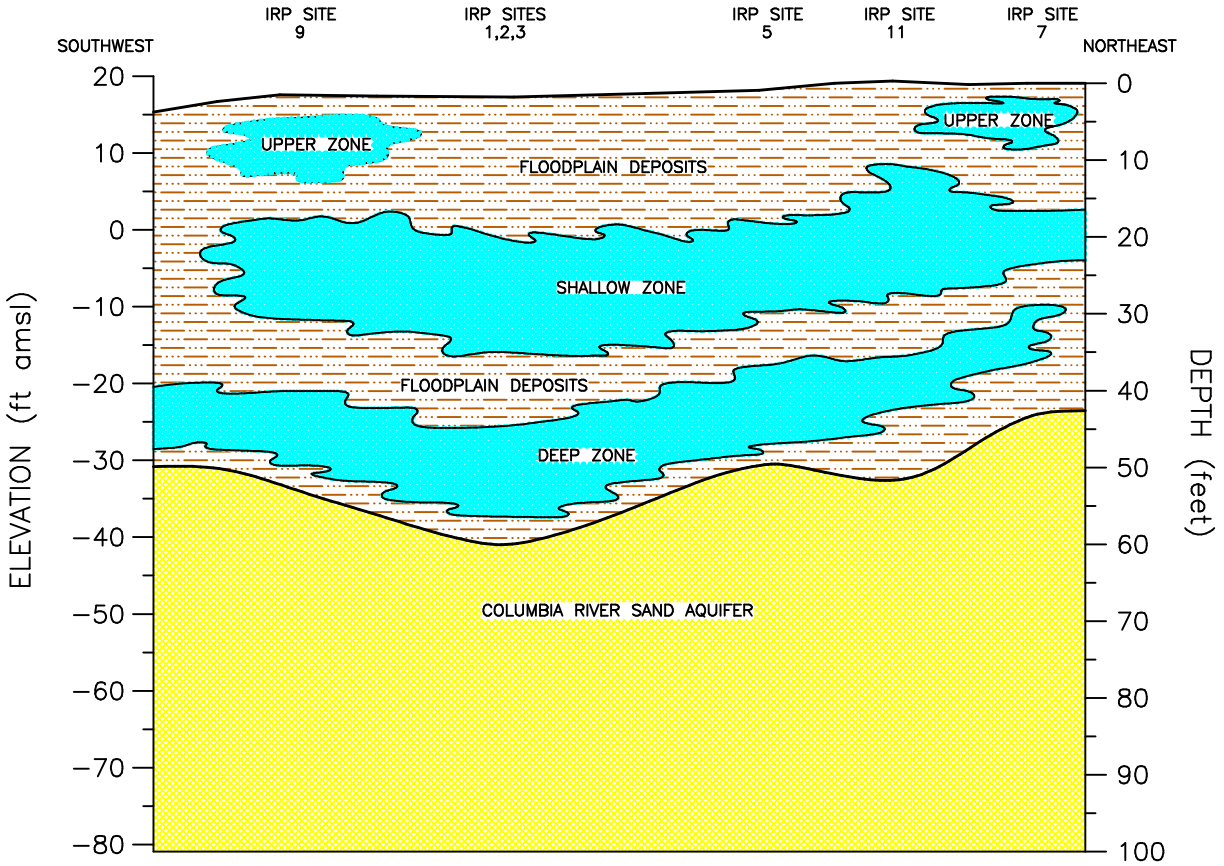
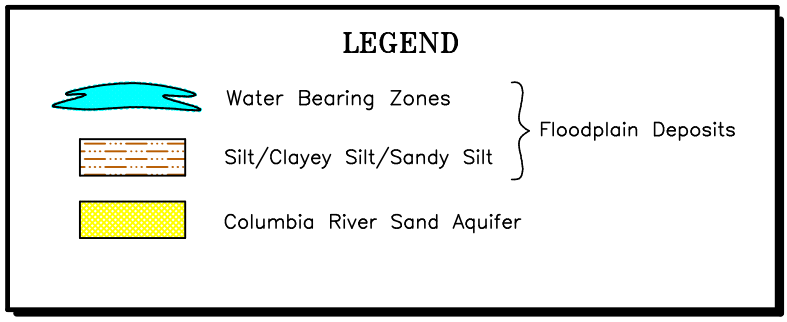
FIGURE 2–3





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GENERALIZED BASE HYDROGEOLOGIC CROSS SECTION

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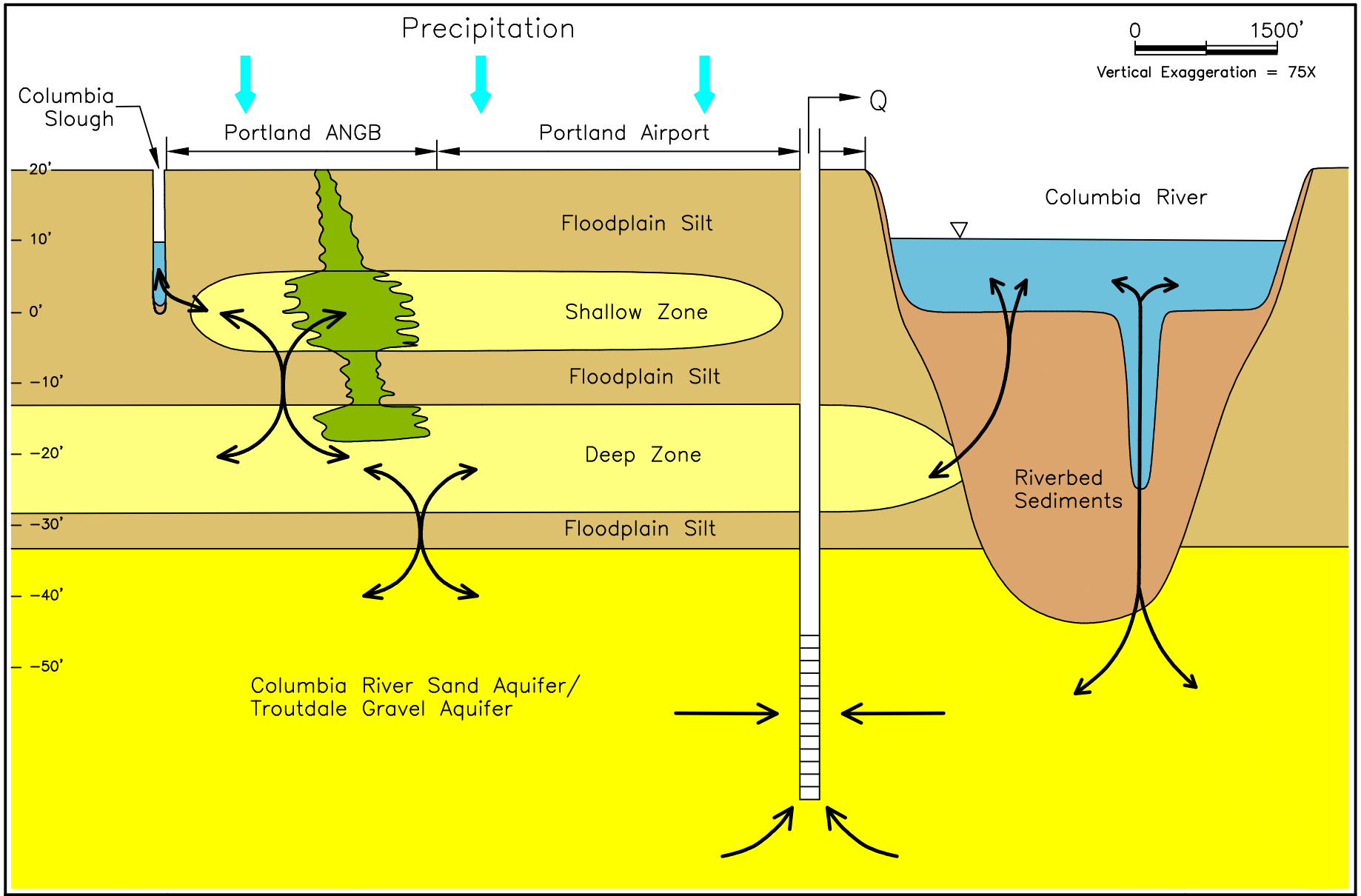
FIGURE 2-4



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Conceptual Hydrogeologic Model

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FIGURE 2-5

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Zone was encountered in several borings at IRP Sites 1, 7, 9, and 11 at approximately 18 feet. The Upper Zone is separated from the Shallow Zone by a silty low-permeability zone up to 6 feet thick, and in some areas grades directly into the Shallow Zone.

Hydraulic conductivity values are not available for the Upper Zone; however, hydraulic conductivities from 0.54 to 15 feet per day (ft/day) are estimated based on the similar grain-size distribution of the Upper Zone and Shallow Zone.

2.6.2.2 Shallow Zone

The Shallow Zone is the shallowest extensive and laterally continuous water-bearing zone at the Portland ANGB. It is a semiconfined aquifer consisting of dark gray, well-sorted, fine sand with occasional silt and scattered silty layers. The Shallow Zone was encountered in all but the southern-most borings drilled during the Site Investigation (SI) and the RI. The top of the Shallow Zone was encountered at depths of 7.5 to 21 feet bgs. Where observed, the Shallow Zone generally ranges in thickness from approximately 3 to 19 feet, and is thickest through the central portion of the Base.

The hydraulic conductivity of the Shallow Zone ranges from 0.54 to 15 ft/day based on aquifer pumping and slug tests completed during the RI. A silty low-permeability zone ranging from 2 to 14 feet thick separates the Shallow Zone from the Deep Zone.

The impacted groundwater at the Base primarily occurs within the Shallow Zone unit. The presence of the silty soils between the Shallow Zone and the Deep Zone has limited the downward migration of contaminants from the Shallow Zone, although impacts to the Deep Zone have been confirmed.

2.6.2.3 Deep Zone

The Deep Zone is an extensive, laterally continuous, and semiconfined water-bearing zone that is typically encountered below depths of 28 to 41 feet bgs and consists of gray fine sand with occasional silt and interbedded silty layers. The Deep Zone was encountered in every deep boring across the IRP study area, with the exception of the boring completed for well MWBG-8, near the eastern Base boundary. Where

observed, the Deep Zone ranges in thickness from approximately 2 to 19 feet.

The hydraulic conductivity of the Deep Zone ranges from 0.46 to 68 ft/day based on aquifer pumping and slug tests completed during the RI. In most areas of the Portland ANGB, the Deep Zone is separated from the underlying CRSA by an intervening low-permeability zone of gray clayey silt that ranges in thickness from less than 1 foot to 12 feet. In one location at the Portland ANGB (MW9-2), the Deep Zone was observed to be in contact with the CRSA. In general, the aquitard between the Deep Zone and the CRSA is thickest in the northern and northeastern portions of the IRP study area, and thinnest in the central and southwestern portions (Figure 2-2).

2.6.2.4 Columbia River Sand Aquifer

At the Portland ANGB, the CRSA is a semiconfined aquifer consisting of gray, fine-to-medium, micaceous, dense sand. The top of the CRSA was encountered at depths ranging from approximately 48 to 60 feet bgs. Logs of borings that penetrate the CRSA at the PIA note the bottom of the unit at approximately 280 feet bgs. The hydraulic conductivity of the CRSA ranges from 16 to 190 ft/day based on aquifer pumping and slug tests completed during the RI.

The Portland Well Field (Figure 1-1) has wells screened in the CRSA. The Western Expansion Area (WEA) of the Portland Well Field would put CRSA production wells within the LOF for the Portland ANGB. The LOF is discussed further in Section 2.10.1. The vertical migration from the Shallow Zone to the CRSA is a potential migration pathway for groundwater contaminants at the Base to reach human receptors.

2.6.3 Groundwater Elevations

Static groundwater levels in each of the water-bearing zones at the site have been observed ranging from near the ground surface to greater than 12 feet bgs. Seasonal groundwater elevation variations of approximately 4 feet or less have been observed in each of the Shallow Zone and Deep Zone, and variations of up to nearly 6 feet have been observed in the CRSA. Continuous water level data were recorded during the RI indicate that groundwater elevations at the Portland ANGB correlate with both precipitation and Columbia River stage. The groundwater elevation in the Shallow Zone appears to correlate more closely with individual

precipitation events; whereas groundwater elevations in the Deep Zone and the CRSA correlate more closely with the Columbia River stage.

2.6.4 Groundwater Flow Directions

A potentiometric surface map for Shallow Zone water levels measured in July 2000 is presented on Figure 2-6. The inferred groundwater flow direction in the Shallow Zone in July 2000 was generally toward the northwest, converging toward the Main Drainage Ditch. However, the inferred groundwater flow direction at the eastern end of the Base (at IRP Site 7) was toward the northeast.

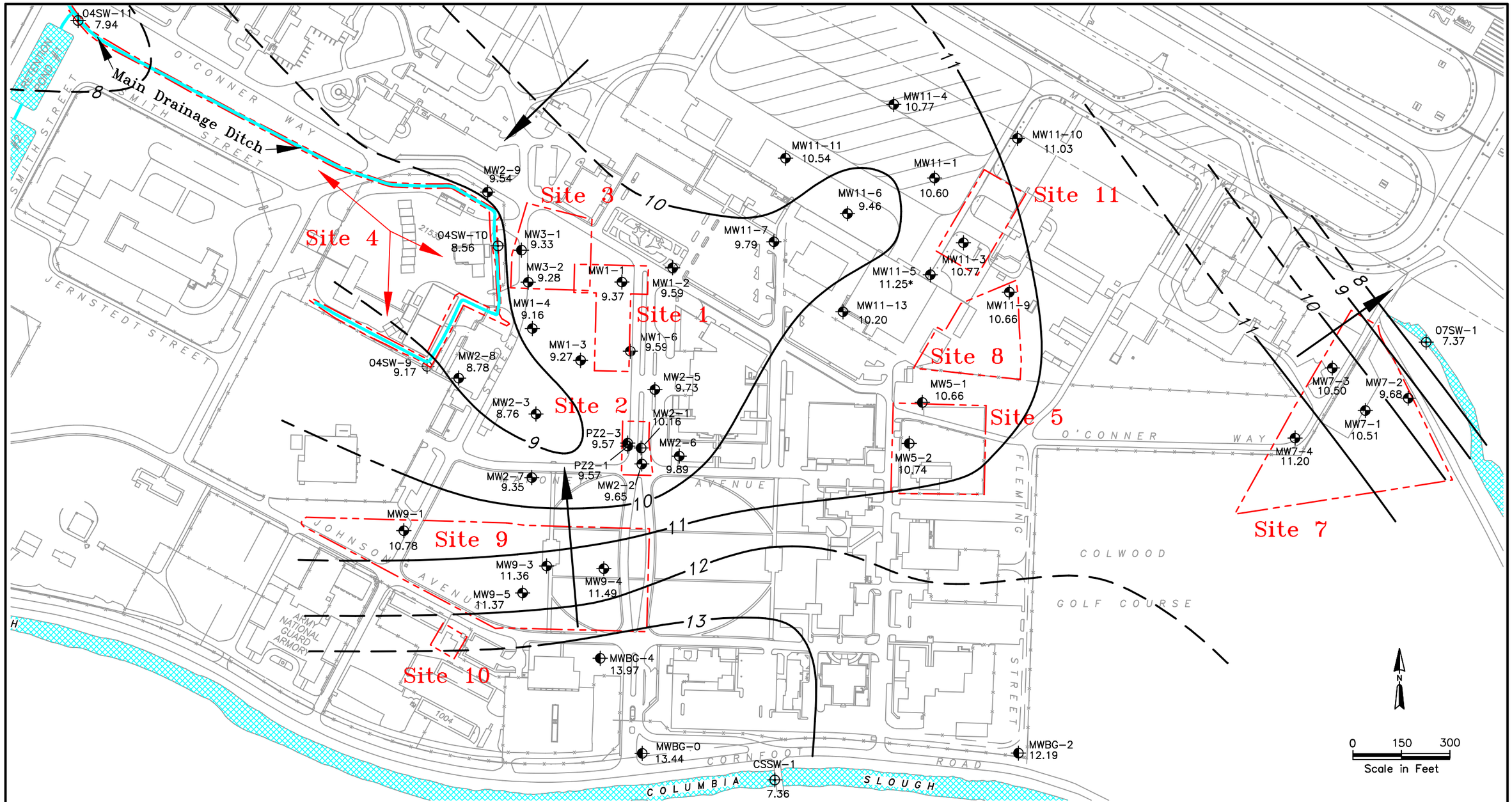
A potentiometric surface map for Deep Zone water levels measured in July 2000 is presented on Figure 2-7. The inferred groundwater flow direction in July 2000 was generally toward the northeast. Previous groundwater flow directions in the Deep Zone have generally been toward the north, although the cumulative water level data indicate occasional temporal and spatial shifts in groundwater flow.

The variable groundwater flow directions in the Deep Zone appear to be related to flow reversals in the CRSA. Significant changes in flow direction in both zones appear to correlate with seasonal fluctuations in the Columbia River stage. When the river stage is low, groundwater generally flows in an easterly direction in the Deep Zone. During moderate-to-high river stages, however, Deep Zone groundwater generally flows west.

The July 2000 potentiometric surface map for the CRSA is presented on Figure 2-8. The inferred groundwater flow direction in the CRSA in July 2000 was toward the northeast. Groundwater flow in the CRSA during previous quarters has fluctuated between northerly and southerly directions. Groundwater flow directions in the CRSA appear to be largely controlled by the Columbia River stage.

2.6.5 Hydraulic Gradients

In July 2000, the horizontal hydraulic gradients in the Shallow Zone and Deep Zone varied across the IRP study area, but averaged approximately 0.004 feet per foot in the Shallow Zone and 0.001 feet per foot in the Deep Zone. The average horizontal hydraulic gradient in the CRSA in July 2000 was approximately 0.0003 feet per foot. Horizontal gradients observed during previous quarters were similar in magnitude to the July 2000 gradients.



Legend

MWBG-4	Monitoring Well, Floodplain Silt
MW7-3	Monitoring Well, Shallow Zone
04SW-11	Surface Water Sampling Location
PZ2-1	Piezometer, Shallow Zone
11.37	Groundwater Elevation Based on 24 July 2000 Data (ft amsl)
*	Datum Not Used For Contouring
11	Contour of Approximate Potentiometric Surface Elevation; Dashed Where Inferred (ft amsl)
	Inferred Groundwater Flow Direction
	IRP Site Boundary

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POTENTIOMETRIC SURFACE MAP–
SHALLOW ZONE,
24 JULY 2000
142nd FW, PORTLAND ANGB
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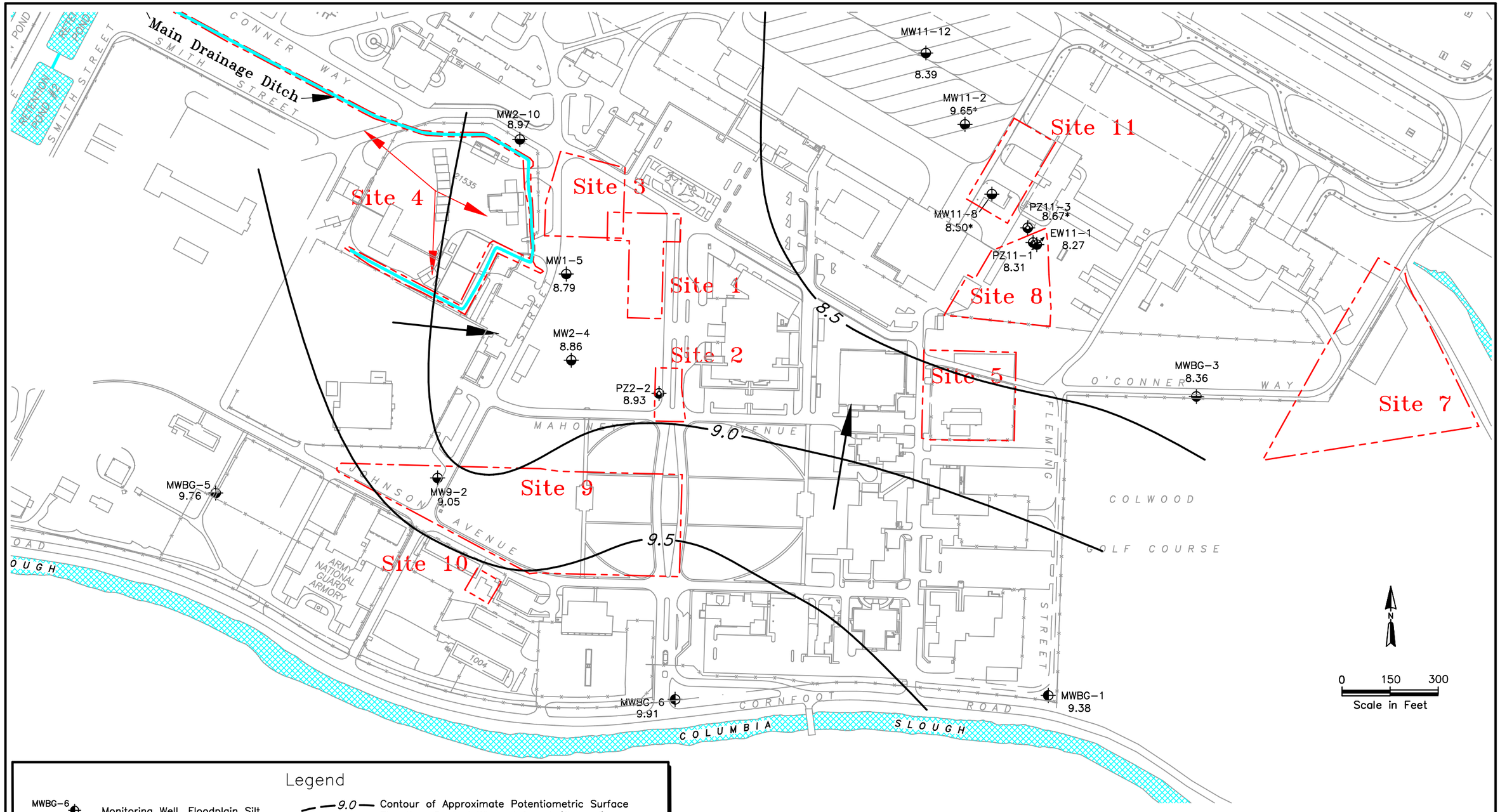
PORTLAND, OREGON

FIGURE 2-6


Main Drainage Ditch
SMITH STREET
CONNER WAY
MW11-12
8.39
MW11-2
9.65*
MW2-10
8.97
Site 11
Site 4
Site 3
MW11-8
8.50*
PZ11-3
8.67*
EW11-1
8.27
PZ11-1
8.31
MW1-5
8.79
Site 1
Site 8
8.5
MW2-4
8.86
Site 2
Site 5
MWBG-3
8.36
O'CONNER WAY
PZ2-2
8.93
Site 7
MAHONEY AVENUE
9.0
MWBG-5
9.76
MW9-2
9.05
Site 9
JOHNSON AVENUE
Site 10
9.5
COLWOOD
GOLF COURSE
ARMY NATIONAL GUARD ARMORY
MWBG-6
9.91
MWBG-1
9.38
CORNFOOT ROAD
COLUMBIA SLOUGH
0 150 300
Scale in Feet
Legend
MWBG-6 Monitoring Well, Floodplain Silt
MW2-4 Monitoring Well, Deep Zone
EW11-1 Extraction Well, Deep Zone
PZ2-2 Piezometer, Deep Zone
IRP Site Boundary
9.0 Contour of Approximate Potentiometric Surface Elevation; Dashed Where Inferred (ft amsl)
Inferred Groundwater Flow Direction
9.76 Groundwater Elevation Based on 24 July 2000 Data (ft amsl)
* Datum Not Used for Contouring
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ERM
POTENTIOMETRIC SURFACE MAP- DEEP ZONE, 24 JULY 2000
142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON
FIGURE 2-7

Main Drainage Ditch

Site 1
Site 2
Site 3
Site 4
Site 5
Site 7
Site 8
Site 9
Site 10
Site 11

MWBG-7 8.60
MWBG-8 8.17
MWBG-9 8.60
MWBG-10 8.60
MWBG-11 8.40
PZ11-5 8.27
PZ11-4 8.24
PZ11-2 8.25
EW11-2 8.23

8.20
8.30
8.40
8.50
8.60

O'CONNER WAY
SMITH STREET
JERNSTEDT STREET
MAHONEY AVENUE
JOHNSON AVENUE
MILITARY TAXIWAY
FLEMING STREET
COLWOOD GOLF COURSE
CORNFOOT ROAD
COLUMBIA SLOUGH
ARMY NATIONAL GUARD ARMORY
21535
1004

N

0 150 300
Scale in Feet

Legend

MWBG-8 ⊕	Monitoring Well, Columbia River Sand Aquifer
EW11-2 ⊕	Extraction Well, Columbia River Sand Aquifer
PZ11-2 ⊕	Piezometer, Columbia River Sand Aquifer
8.60	Groundwater Elevation Based on 24 July 2000 Data (ft amsl)
8.50	Contour of Approximate Potentiometric Surface Elevation; Dashed Where Inferred (ft amsl)
	IRP Site Boundary
←	Inferred Groundwater Flow Direction

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ERM

POTENTIOMETRIC SURFACE MAP–
COLUMBIA RIVER SAND AQUIFER,
24 JULY 2000
142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 2-8

In July 2000, the vertical gradient was downward at eight Shallow Zone/Deep Zone well pair locations and upward at one location. The vertical gradient was downward at each of the three Deep Zone/CRSA well pair locations. Gradient magnitudes ranged from 0.002 feet per foot to 0.752 feet per foot. The variable vertical gradients observed in July 2000 and previous months reflect lateral variations in both the horizontal hydraulic gradients within the water-bearing zones and the thickness of the silt layers between the zones.

2.7 Previous Investigations and Remedial Actions

Beginning in 1987, four IRP investigation phases have been completed at the Portland ANGB: the PA, the SI, the RI, and the Engineering Evaluation/Cost Analysis (EE/CA) Investigation. In addition, quarterly groundwater monitoring has been conducted since January 1997. These investigations are summarized in the following subsections.

2.7.1 Preliminary Assessment

In 1987, under the United States Air Force IRP as implemented by the ANG, a Phase I Record Search was completed and recorded as part of the PA (HMTC 1987). The PA investigation included: an on-site visit to interview past and present Portland ANGB employees; the acquisition and analysis of pertinent information and records on the Portland ANGB's hazardous materials use and waste generation and disposal practices; and the analysis of available geological, hydrological, meteorological, and environmental data from Federal, State, and local agencies.

The PA evaluated eight sites on the Portland ANGB (IRP Sites Nos. 1 through 8), and ranked six of these sites in accordance with the United States Air Force Hazardous Assessment Rating Methodology Protocol. The eight sites evaluated during the PA are as follows:

- IRP Site 1 - Central Hazardous Waste Storage Area
- IRP Site 2 - Civil Engineering Hazardous Material Storage Area
- IRP Site 3 - Hush House Area
- IRP Site 4 - Main Drainage Ditch
- IRP Site 5 - Aerospace Ground Equipment (AGE) Maintenance Shop

- IRP Site 6 - Wash Rack West of Building 1355
- IRP Site 7 - Burn Pit Area
- IRP Site 8 - Sanitary Landfill

Following the PA, limited field sampling was conducted at IRP Site 4 by RN Smith Associates in 1987, and at IRP Site 3 by SRH Associates, Inc., in 1988 (SRH 1988).

In December 1988, the Oregon ANG reported an underground storage tank (UST) leak at the POL Facility to the ODEQ. The fuel leak resulted in the identification of an additional IRP site, IRP Site 9 - POL Facility.

2.7.2 Site Investigation

In 1989, an SI of the IRP sites identified in the PA as requiring further investigation (IRP Sites 1 through 5, 7 and 8) was implemented by SAIC. The results of the SI are reported in the *Site Investigation Report* (SAIC 1991).

During the SI phase of work, two additional IRP sites were identified, based on the previous analytical results from samples collected by Portland ANGB personnel:

- IRP Site 10 - Equipment Wash Rack
- IRP Site 11 - Wash Rack West of Building 250 (Formerly IRP Site 6)

2.7.3 Remedial Investigation

Between 1995 and 2000, a multi-phase RI was performed at the Portland ANGB. The RI included the following phases:

- A Phase I RI performed by Operational Technologies Corporation (OpTech 1996);
- A Remedial Investigation/Data Gap Evaluation (RI/DGE) performed by ERM (ERM 1997); and
- An RI performed by ERM (ERM 2001a).

Descriptions of each of the above-referenced phases is provided in the following subsections.

2.7.3.1 Phase I RI

In 1995 and 1996, a Phase I RI was performed by OpTech. The field activities performed during the Phase I RI consisted of installing monitoring wells; collecting soil, sediment, soil gas, and groundwater samples; conducting aquifer tests; and performing geophysical surveys at ten of the IRP sites. The results of the Phase I RI were documented in the *Draft Remedial Investigation Report* (OpTech 1996).

2.7.3.2 Remedial Investigation/Data Gap Evaluation

In 1997, ERM conducted an RI/DGE to fill data gaps in the SI and Phase I RI. RI/DGE activities were performed at IRP Sites 1, 2, 5, 7, and 11. The results of the RI/DGE were presented in the *Final Investigation/Data Gap Evaluation (RI/DGE) Technical Memorandum* (ERM 1997).

2.7.3.3 Phase II RI

Phase II RI field activities were performed by ERM from April 1998 through November 1999 at IRP Sites 1, 2, 3, 4, 5, 7, 9, 10, and 11. The Phase II RI consisted of the following screening and confirmation activities, and additional supporting tasks:

Screening Activities

- Organic vapor (headspace) screening of soil samples; and
- Direct-push groundwater sampling to assess the nature and extent of contamination in groundwater and identify possible source areas.

Confirmation Activities

- Sediment and surface water sampling to determine the nature and extent of contamination in the Main Drainage Ditch;
- Surface and subsurface soil sampling to determine the nature and extent of contamination in soil; identify possible source areas for groundwater contamination; and determine lithology; and
- Installation and sampling of groundwater monitoring wells to determine the nature and extent of contamination in groundwater and monitor potential contaminant migration.

Supporting Tasks

- Measuring groundwater and surface water elevations to characterize hydraulic gradients, groundwater flow patterns, and groundwater/surface water interactions;
- Conducting aquifer testing to determine aquifer hydraulic properties;
- Performing a natural attenuation evaluation to assess the occurrence and rate of dissolved contaminant losses from groundwater due to intrinsic natural processes (for example, biodegradation);
- Conducting groundwater flow modeling to predict the effects of possible, future groundwater withdrawal in the Portland well field WEA;
- Performing an in-well aerator pilot test to assess the efficacy of this remediation technology for reducing chlorinated volatile organic compound (VOC) concentrations in groundwater;
- Conducting location and elevation surveys of the Phase II RI soil borings, groundwater sampling/monitoring points, and surface water measurement benchmarks; and
- Performing a baseline risk assessment to evaluate the potential human health and ecological risks associated with contaminated soil, sediment, groundwater, and surface water.

Soil and/or groundwater samples were collected from direct-push borings, hand-auger borings, hollow-stem auger borings, groundwater monitoring wells, groundwater extraction wells, and piezometers. The results of the Phase II RI are presented in the Final RI Report (ERM 2001a).

2.7.4 EE/CA Investigation and Removal Action

During January through March 1998, ERM performed an EE/CA Investigation at IRP Site 11 to define the lateral and vertical extent of chlorinated- and hydrocarbon-impacted soil at the site. The scope of work of the EE/CA Investigation included the installation of 24 direct-push soil borings, and the collection of a groundwater sample at each location. The results of the EE/CA Investigation were reported in the *Final Engineering Evaluation/Cost Analysis (EE/CA) for IRP Site 11*, (ERM 1998).

A soil removal action was performed at the site in September 1999 as part of the soil EE/CA process. The following scope of work was completed as part of this removal action:

- Sludge and water were removed from the oil/water separator;
- The oil/water separator and washrack were removed and hauled off-site; and
- Approximately 260 cubic yards of impacted soil were removed in the immediate vicinity of the former oil/water separator and hauled off-site to a thermal desorption facility.

The scope results of the 1999 soil removal action are detailed in the *Final Completion Report for Site 11 Interim Remedial Action Construction for Soils Media*, (ERM 2000b).

2.8 Current IRP Activities

Current IRP environmental activity at Portland ANGB includes an EE/CA for a non-time critical, groundwater removal action at IRP Site 11, an IRAC project to evaluate groundwater remediation technologies at IRP Site 2, and ongoing groundwater monitoring. These activities are described in the following subsections.

2.8.1 IRP Site 11 Groundwater EE/CA

A general description of how the EE/CA fits into the FS process is presented in Appendix A. The EE/CA currently being conducted at IRP Site 11 closely parallels this FS, in that many components are similar, such as the establishment of RAOs, the development of remedial alternatives, the detailed analysis of such alternatives, and the selection of a preferred RA alternative. The EE/CA Report follows the recommended ANG/CEVR format and contains the information suggested in the USEPA document *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* (USEPA 1993). The *Final Site 11 Groundwater EE/CA* was submitted in June 2001 (ERM 2001b). In addition, a conceptual design document, representing the first phase of design of the remedial action recommended in the EE/CA, was submitted in April 2001.

2.8.2 IRP Site 2 Interim Remedial Action Construction

The other IRP work currently being conducted at the Portland ANGB is a two-phase, IRAC for the purposes of providing treatability testing support for the FS, and to begin cleanup of groundwater at IRP Site 2. The results of the IRAC will be used to evaluate treatment of VOCs in groundwater across the Base.

The first phase of the IRAC involved a three-month treatability test to evaluate the effectiveness of three in-situ remediation technologies for treatment of VOCs in groundwater at IRP Site 2: enhanced aerobic bioremediation with Oxygen Release Compound (ORC®), ozonation, and potassium permanganate oxidation.

The treatability test phase of the IRAC has been completed. The results indicate that all three technologies were effective in destroying VOCs in groundwater. Certain site-specific factors such as preferential flow paths, high levels of organic carbon in the soil, and low horizontal hydraulic gradient appear to present limitations to treatment at the site. A summary of the IRAC treatability results are presented in the *Interim Remedial Action Construction Phase I Interim Report* submitted in February 2001 (ERM 2001c). A work plan for the second phase of the IRAC has been prepared and the full-scale technology demonstration is expected to be implemented in fall of 2001 (ERM 2001d).

The second phase of the IRP Site 2 IRAC will involve the full-scale demonstration of in situ oxidation by potassium permanganate injection. The purpose of this phase will be to demonstrate that the preferred remediation technology is effective, on a larger scale, at reducing human health and environmental risk to an appropriate level.

2.8.3 Groundwater Monitoring

Basewide groundwater monitoring at the Portland ANGB is expected to continue. Future groundwater monitoring will focus on potential off-site contaminant migration and/or downward migration to the CRSA drinking water aquifer at Sites 2, 9, and 11.

2.9 Contaminant Fate and Transport

This section presents some of the results of the contaminant fate and transport analysis performed during the RI. A more complete discussion of contaminant fate and transport is presented in the Final RI Report (ERM 2001a).

Release mechanisms for contaminants of concern (COCs) in soil include infiltration of precipitation and direct contact of the water table with contaminated soil. The primary pathways for contaminant migration at the Portland ANGB are:

- Leaching of soil contaminants to groundwater; and
- Transport of contaminants away from source areas via advection and dispersion in groundwater.

2.9.1 Leaching of Soil Contaminants

Precipitation has the potential to infiltrate and contact contaminated soil at IRP Sites 1, 3, 5, 7, 9, 10, and 11; however, leaching of the relatively immobile metals detected in surface soil at Sites 5 and 10 is likely insignificant. The rate of contaminant migration for this pathway is controlled by the infiltration rate of precipitation, the contact time between the infiltrating water and the contaminants, the rate of evaporation, the permeability and wetting characteristics of the soil, and the solubility of the COCs. The precipitation infiltration rate in turn depends on seasonal precipitation rates and ground surface conditions (e.g., paved / unpaved, surface vegetation, slope).

2.9.2 Groundwater Transport

Groundwater contamination is present at IRP Sites 1, 2, 3, 9, and 11. Groundwater typically occurs between 2 and 10 feet bgs in monitoring wells at the Portland ANGB. Horizontal groundwater flow occurs primarily through the permeable sand zones. From the surface, infiltrating precipitation contacts the water table within the Floodplain Silt and flows downward to the Shallow Zone. Groundwater then flows horizontally through the Shallow Zone. In areas where the groundwater elevation in the Deep Zone is less than the groundwater elevation in the Shallow Zone, groundwater can potentially flow downward to the Deep

Zone. Likewise, in areas where the groundwater elevation in the CRSA is less than that in the Deep Zone, groundwater can potentially flow downward to the CRSA. Downward vertical hydraulic gradients were observed at various times and locations during the Phase II RI and Basewide groundwater monitoring program.

The results of aquifer testing indicate that vertical groundwater flow through the silt layer separating the Shallow and Deep Zones is relatively slow. The vertical hydraulic conductivity of this silt layer is estimated to be approximately 1.9 gpd/ft^2 (0.25 ft/d) based on pumping test data. Assuming an effective porosity of 30 percent and a vertical hydraulic gradient of 0.001 feet per foot (consistent with observed gradients at IRP Sites 1, 2, and 3) the groundwater seepage velocity through the silt layer is estimated to be on the order of 0.001 ft/d. The seepage velocity through the silt layer separating the Deep Zone from the CRSA is expected to be similar in magnitude.

2.9.3 Groundwater Flow Modeling Results

A groundwater flow model was developed to predict the effects of potential future groundwater withdrawal in the Portland well field WEA on the groundwater flow regime under the Portland ANGB. The WEA is approximately 1.5 miles east of the Base.

The numerical groundwater model was constructed using Visual MODFLOW, a widely used groundwater modeling software package. The basis for the Portland ANGB groundwater model is the City of Portland's Deep Aquifer Yield flow model, which was developed to evaluate groundwater response to pumping in the Portland well field.

The Portland ANGB model was used to conduct predictive simulations of several different pumping scenarios in the Portland well field. In one of the scenarios, the two existing CRSA/Troutdale Gravel Aquifer (TGA) production wells in the WEA and a third CRSA well approximately 3,000 feet east of the WEA were assumed to pump continuously at maximum capacity (3,000 to 6,000 gallons per minute per well). The modeling results for this scenario predict that the pumping wells would not induce groundwater under the Portland ANGB to flow toward the Portland well field.

Another pumping scenario under consideration by the City of Portland involves the installation and operation of two new TGA production wells in the WEA, in addition to the existing TGA well. The modeling results

predict that this pumping configuration would cause groundwater under the Base to migrate toward the pumping wells. However, after 3 years of continuous pumping (the maximum anticipated duration of pumping under this scenario), Shallow Zone groundwater would migrate primarily west and then downward into the Deep Zone; lateral migration toward the Portland well field is predicted to be on the order of 100 feet or less. The results for this scenario suggest that the production wells would have to be pumped continuously at full capacity for approximately 26 years before Shallow Zone groundwater under the Base would reach the closest production well.

A third pumping scenario was modeled to evaluate whether any of the new CRSA/TGA production wells currently proposed by the City for the WEA could be installed and operated along with the existing shallow production wells, without significantly affecting groundwater flow under the Portland ANGB. The results for this scenario suggest that up to two additional shallow production wells could be installed at proposed well sites in the WEA. These new wells and the three existing wells could be pumped continuously at capacity with minimal impact on groundwater flow under the Base.

The predictive simulations in the present modeling study are a first-order approximation of the expected groundwater flow response to the pumping scenarios evaluated. A number of simplifying assumptions were made in developing the model, and the inputs to the model were based on limited field data. Additionally, the model simulations assumed steady-state conditions and a static water level in the Columbia River. Water level data for the Portland ANGB and the Columbia River, as well as the observed model behavior during calibration and sensitivity analysis, indicate that the groundwater flow system is very dynamic.

Further discussion regarding groundwater transport and modeling is presented in the Final RI document, including further discussion of uncertainties associated with the groundwater flow monitoring. Also, contaminant transport modeling is currently being performed for the Base and these results will be documented late in 2001.

2.10 Beneficial Use Survey

This section summarizes the results of the beneficial use survey completed for the Portland ANGB.

2.10.1 Locality of the Facility

Oregon regulations require the identification of current and reasonably likely future beneficial water uses in the LOF. LOF is defined in Oregon Administrative Rules (OAR) 340-122-115(34) as any point where a human or an ecological receptor contacts, or is reasonably likely to come into contact with, facility-related hazardous substances. The LOF takes into account the likelihood of the contamination migrating over time, and as such is typically larger than the facility (ODEQ 1998a).

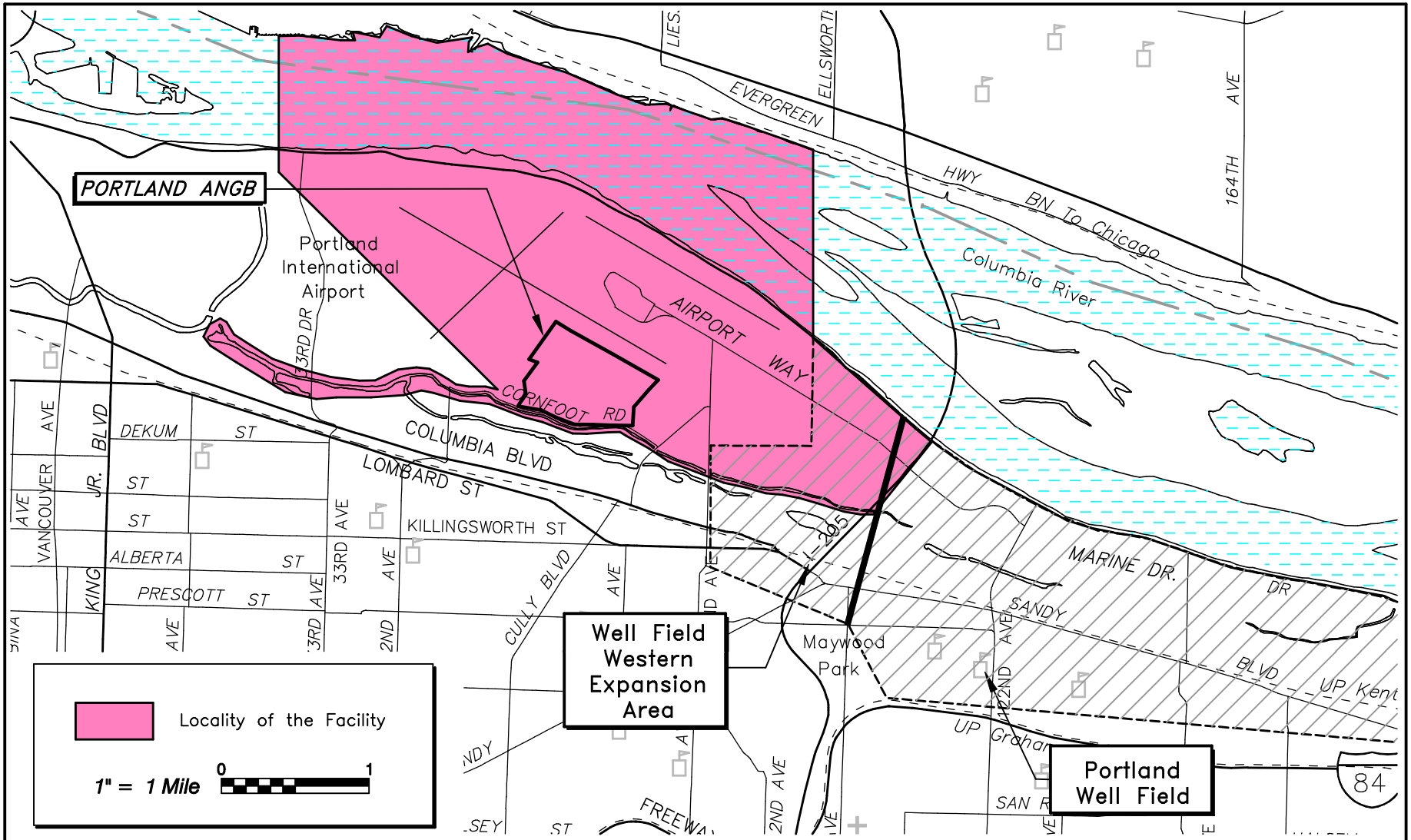
Based on modeling and migration scenarios developed in the Final RI Report (ERM 2001a), the LOF for the Base was determined to extend a significant distance beyond the actual Base footprint. The LOF for the Base, as shown on Figure 2-9, includes off-site areas such as a portion of the Columbia River, the Columbia Slough, and the Portland Well Field. The extent of the LOF for the Base was established based on the slight potential for existing VOCs in groundwater at IRP Sites 2, 9, and 11 to migrate to the above-mentioned areas.

2.10.2 Groundwater

Groundwater within the property boundary of the Portland ANGB is not currently used and there is no plan to use Base groundwater in the future. The industrial nature of the current and planned future use of the Base limits the potential for installing production wells. However, the groundwater resources at the Base, particularly the CRSA, have the capacity to sustain production for uses other than municipal supply, such as use on-site for process water, wash water, or on-site drinking water.

The off-site portion of the LOF includes part of the Portland well field, the Columbia River, and the Columbia Slough. The only current beneficial use of groundwater for this area is recharge of surface water. There are currently no groundwater production wells within the LOF (ERM 2001a). However, the LOF includes the Portland well field WEA, where future pumping of CRSA groundwater could occur.

Possible future beneficial uses of groundwater at the LOF include uses typical of a municipal water supply (drinking, irrigation, industry, etc.) and recharge of surface water. It is possible that planned wells within the Portland well field WEA will be activated. If these wells were activated, there is a potential, under certain pumping scenarios, that groundwater containing VOCs from IRP Sites 2, 9, or 11 could reach the well field.



Source: Portland Air National Guard Base Masterplan, May 1997

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LOCALITY OF THE FACILITY

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FIGURE 2-9

There is also slight potential for groundwater containing VOCs to migrate directly or indirectly to the surface water resources mentioned above. This could effect beneficial uses of these resources, depending on the concentration of VOCs reaching the surface water body. The beneficial use of surface water is discussed in the section below.

2.10.3 Surface Water

As mentioned above, three surface water bodies exist within the LOF for the Portland ANGB; (1) the drainage ditch at IRP Site 4, (2) the Columbia Slough south of the Base, and (3) the Columbia River at the northern boundary of the LOF. Beneficial use of these surface water bodies includes aquatic life habitat, recreation, aesthetic quality, and irrigation. The off-site surface water bodies are included in the LOF due to a potential hydraulic connection to the Shallow Zone at the Base.

Groundwater containing VOCs at IRP Sites 2, 9, and 11 has not impacted off-site surface water. However, if left untreated, VOCs at these sites may migrate to the three above-referenced surface water bodies. The impact to the beneficial uses of the surface water is not expected to be significant due to the time and distance required for VOCs to travel from each IRP site to the nearest off-site surface water body.

2.10.4 Land Use

The Portland ANGB property is leased by the ANG from the Port of Portland. This property is zoned for industrial use (City of Portland Bureau of Planning 2000a). Current operations at the Base are consistent with this land use designation. In order to determine the likely future land use of the property, the Port of Portland planning department was contacted. In addition, the PIA Master Plan and the City of Portland Comprehensive Plan Map were reviewed.

According to the Port of Portland planning department, the Portland ANGB property is expected to be used indefinitely for aviation purposes. There is no likelihood that the Base property would eventually be developed for residential use (Port of Portland 2001). The Portland Airport Master Plan indicates that future development of the airport facilities will most likely include relocation of the Portland ANGB to an area in the northwest part of the airfield. The recommended development alternative calls for construction of a second passenger terminal and a possible third runway in the area currently occupied by the Base (Port of

Portland 2000). The City's Comprehensive Plan Map identifies the area encompassing the Portland ANGB as "Industrial Sanctuary" (City of Portland Bureau of Planning 2000b). Accordingly, the current industrial land use of the Portland ANGB property is not expected to change in the future.

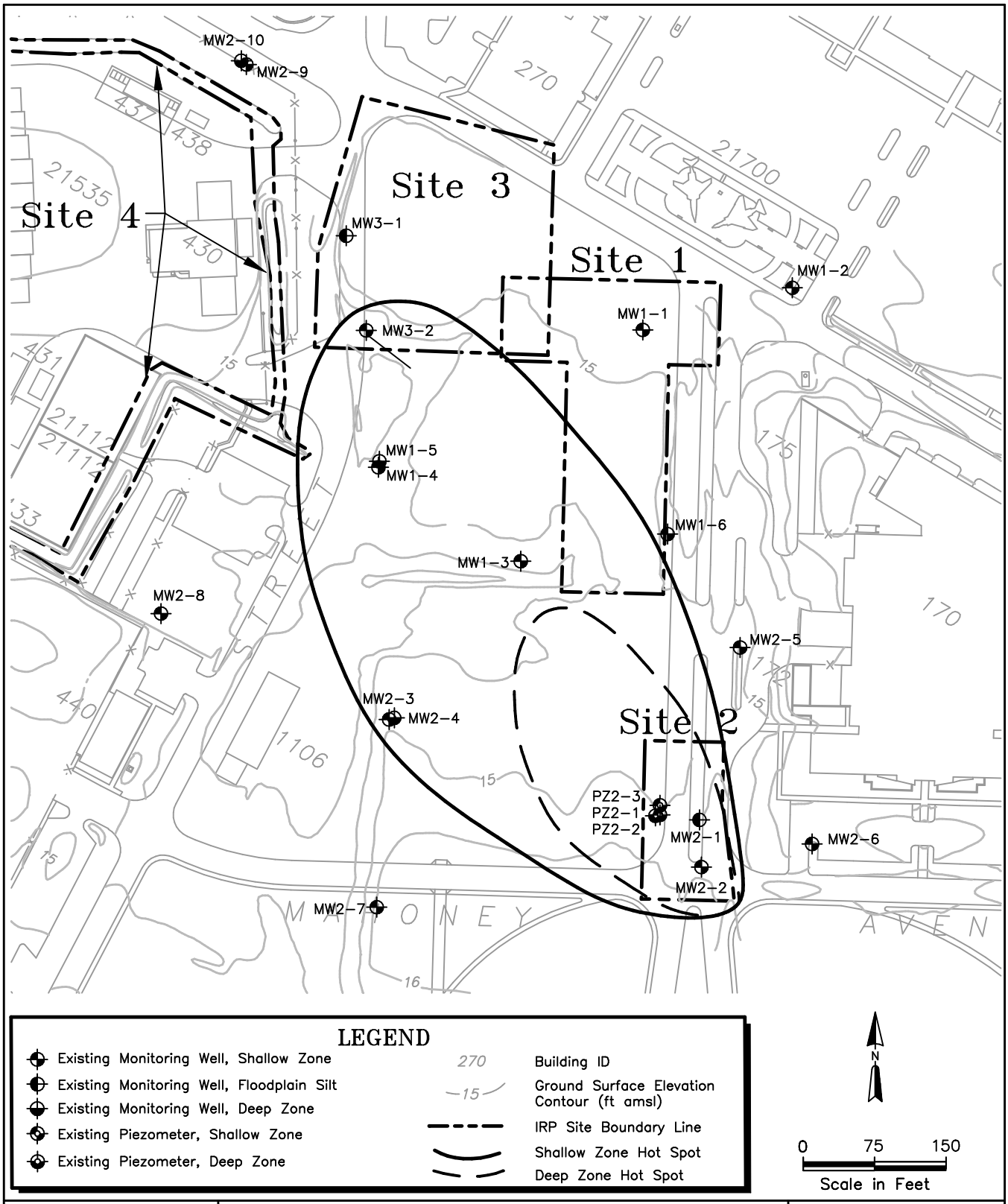
2.11 Hot-Spot Evaluation

ODEQ requires that all remedies considered in an FS address treatment of "hot spots." According to the *Final Guidance for Identification of Hot Spots* (ODEQ 1998c), a hot spot exists if contamination results in a significant adverse effect on the beneficial use of that resource and if restoration or protection of the beneficial use can occur within a reasonable amount of time.

Although unlikely, future pumping scenarios in the Portland well field as described in Section 2.9 above, groundwater at the Portland ANGB has the potential to reach the WEA. The National Primary Drinking Water Standard Maximum Contaminant Level (MCL) is the criteria used to determine if a significant adverse effect exists regarding the use of groundwater at the WEA as drinking water (ODEQ 1998c). Comparing analytical data for several VOCs at IRP Sites 2, 9, and 11 with the respective MCLs indicates that a significant adverse effect would exist if groundwater from these sites were to migrate to the WEA.

The focus of this FS was to determine how to treat groundwater at IRP Sites 2, 9, and 11 to the extent necessary to prevent significant adverse effect on off-site groundwater. Remedial alternatives were developed which are expected to restore the groundwater within a reasonable timeframe.

Certain areas of groundwater at IRP Sites 2, 9, and 11 are considered hot spots based on the two principles described above. The groundwater hot spot at IRP Site 2 consists of the largest area containing an exceedence of either vinyl chloride (VC) at 2 micrograms per liter (µg/l); trichloroethene (TCE) at 5 µg/l; cis-1,2-DCE at 70 µg/l; or trans-1,2-DCE at 100 µg/l. The area of the hot spot at IRP Site 2 is delineated on Figure 2-10. The groundwater hot spot at IRP Site 9 is the area where the benzene concentration exceeds 5 µg/l. The area of the hot spot at IRP Site 9 is delineated on Figure 2-11. The groundwater hot spot at IRP Site 11 is the area where either VC exceeds 2 µg/l; cis-1,2-DCE exceeds 70 µg/l; trans-1,2-DCE exceeds 100 µg/l; or benzene exceeds 5 µg/l. The area of the hot



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IRP SITE 2
HOT SPOT OF CONTAMINATION IN GROUNDWATER

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FIGURE 2-10

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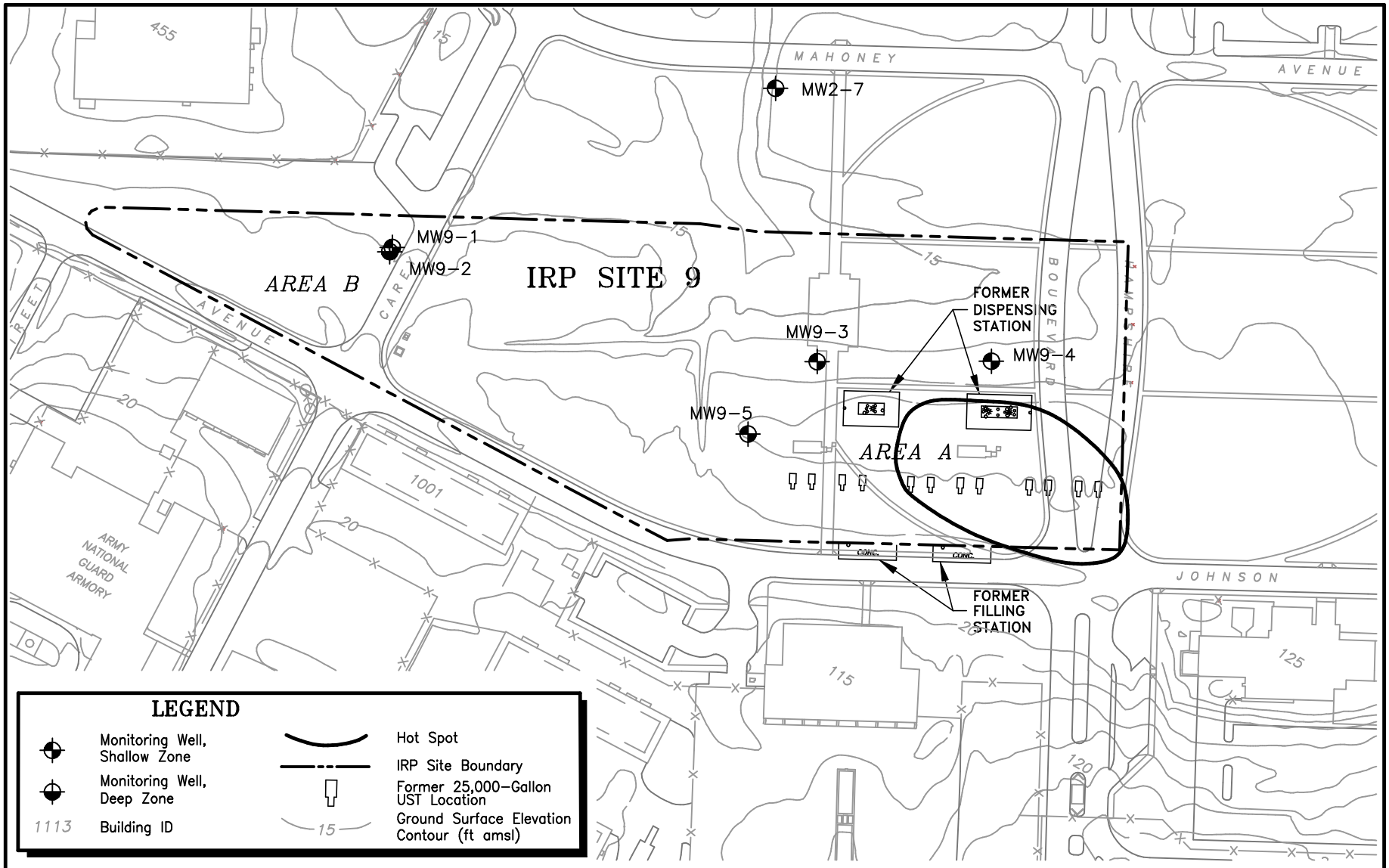

IRP SITE 9
HOT SPOT OF CONTAMINATION IN GROUNDWATER

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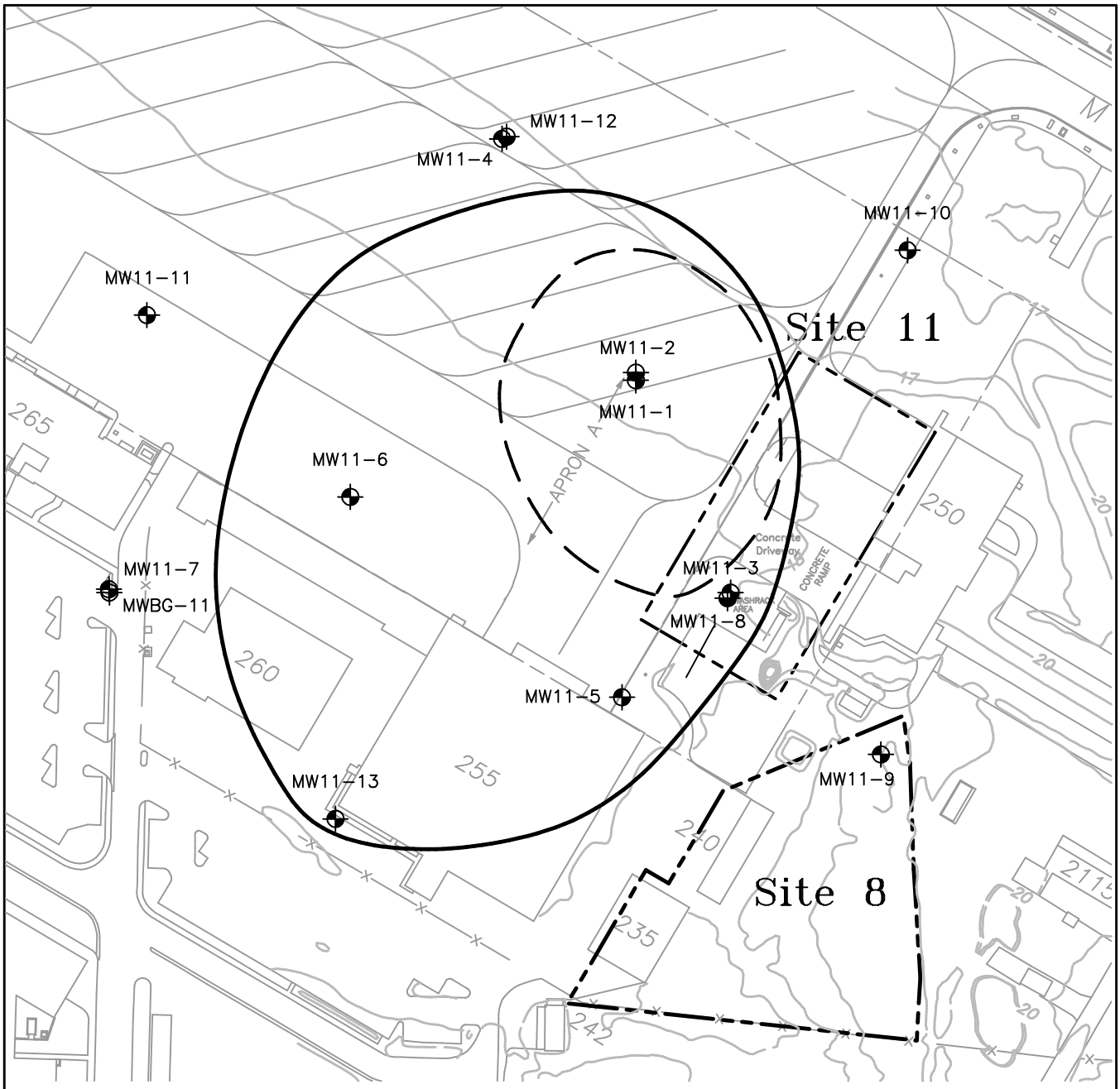
FIGURE 2-11

spot at IRP Site 11 is delineated on Figure 2-12. The hot spots at IRP Sites 2 and 11 include small areas of Deep Zone groundwater due to recent detections of VOCs above respective MCLs. These hot spots will be addressed in the same manner as the hot spots in Shallow Zone groundwater.



LEGEND

- Monitoring Well, Shallow Zone
- Monitoring Well, Deep Zone
- Monitoring Well, Columbia River Sand Aquifer
- Shallow Zone Hot Spot
- Deep Zone Hot Spot
- IRP Site Boundary
- 270 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)

N

0 75 150

Scale in Feet

ERM

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IRP SITE 11
HOT SPOT OF CONTAMINATION IN GROUNDWATER

142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 2-12

SECTION 3.0

IRP SITE DESCRIPTIONS

This section includes background and historical information regarding each IRP site at the Base, as well as the respective results of the RI. Subsequent to the background and historical summaries provided for each site, the information described below will be presented:

- Waste Storage/Disposal History: A brief history of the waste storage/disposal practices conducted at each IRP site is provided.

- Nature and Extent of Contamination: A summary of the contaminants identified at the site; their concentrations and spatial distribution in soil, groundwater, sediment, and/or surface water; and their exceedances of the project screening goals (PSGs) developed during the RI are presented in Table 3-1.

- Risk Assessment Results: The results of a baseline risk assessment for each IRP site are discussed. These results were the basis for the development of remedial alternatives. The development of remedial alternatives is recommended for sites with risks that exceed ODEQ and/or USEPA acceptable levels.

- Recommendations: A discussion is presented regarding what action should be taken at each IRP site, based on the level of contamination or risk. In cases where a recommendation is made for further analysis of an IRP site, remedial alternatives are fully evaluated in sections 4.0 and 5.0.

A summary of the waste disposal history, nature and extent of contamination, risk assessment results, and recommendations for each IRP site is provided in Table 3-2.

3.1 IRP Site 1 - Central Hazardous Waste Storage Area

The former Central Hazardous Waste Storage Area is on the north side of former Building 1131, as shown on Figure 3-1. The waste storage area did not have a containment structure (SAIC 1991).

TABLE 3-1

Project Screening Goals for Groundwater, Surface Water, and Soil
142nd FW, Portland ANGB, Portland, Oregon

Analyte	Groundwater Project Screening Goal (µg/l)	Surface Water Project Screening Goal (µg/l)	Soil Project Screening Goal (mg/kg)
Acetone	610	610	0.8
Acenaphthene	370	520	29
Acenaphthylene	--	--	--
Anthracene	1800	--	590
Benzene	0.39	0.39	0.002
Benzo(a)anthracene	0.01	0.01	0.08
Benzo(b)fluoranthene	0.01	0.01	0.1
Benzo(k)fluoranthene	0.01	0.01	0.1
Benzo(a)pyrene	0.0092	0.0092	0.1
Benzo(g,h,i)perylene	--	--	--
Benzoic Acid	150000	--	20
Benzyl Alcohol	11000	--	200,000
Bis(2-ethylhexyl)phthalate	4	160	4
Bromodichloromethane	0.18	0.18	0.01
2-Butanone (MEK)	1900	1,900	27,000
Butylbenzylphthalate	7300	3	810
Carbazole	--	--	0.03
Carbon disulfide	21	21	--
Chlorobenzene	39	50	0.07
Chloroform	0.16	1,240	--
Chloromethane	1.5	1.5	--
Chrysene	0.01	--	0.1
Dibenz(a,h)anthracene	--	--	0.08
Dibenzofuran	24	--	2,300
1,4-Dichlorobenzene	0.47	763	0.1
1,3-Dichlorobenzene	180	--	2,000
1,2-Dichlorobenzene	370	763	0.9
1,2-Dichloroethane	0.12	20,000	0.001
1,1-Dichloroethane	810	810	--
1,1-Dichloroethene	0.046	0.046	--
cis-1, 2-Dichloroethene	61	61	0.02
trans-1,2-Dichloroethene	100	100	0.03
total-1,2-Dichloroethene	55	55	--
1,2-Dichloropropane	0.16	5,700	--
Diethylphthalate	29000	3	860,000
2,4-dimethylphenol	730	--	0.4
Dimethylphthalate	370000	3	--
Di-n-butylphthalate	3700	3	270
Di-n-octylphthalate	730	3	10,000
Ethylbenzene	700	700	0.7
Ethylene glycol	73000	73,000	1,400,000
Fluoranthene	1000	--	210
Fluorene	240	240	28
Hexachloroethane	--	--	0.02
2-Hexanone	--	--	--
Indeno(1,2,3-cd)pyrene	--	--	0.1
4-Methyl-2-pentanone (MIBK)	--	--	2,800
Methyl ethyl ketone (MEK)	--	--	27,000
2-Methylnaphthalene	--	--	--
2-Methylphenol	1800	--	0.8
3/4-Methylphenol	180	--	5,300
4-Methylphenol	180	180	--
Methylene chloride (dichloromethane)	4.3	4.3	0.001
Naphthalene	100	620	4
N-Nitrosodiphenylamine	--	--	0.06
Pentachlorophenol	0.56	--	0.003
Phenanthrene	--	--	--
Phenol	22000	--	5
Polychlorinated biphenyls (PCBs)	--	--	0.08
Aroclor-1016	--	--	0.34
Aroclor-1254	--	--	0.34

TABLE 3-1

Project Screening Goals for Groundwater, Surface Water, and Soil
142nd FW, Portland ANGB, Portland, Oregon

Analyte	Groundwater Project Screening Goal (µg/l)	Surface Water Project Screening Goal (µg/l)	Soil Project Screening Goal (mg/kg)
Pyrene	180	180	210
1,1,2,2-Tetrachloroethane (1,1,2,2-PCA)	0.055	--	0.0002
Tetrachloroethene (PCE)	1.1	840	0.003
Toluene	720	720	0.6
TPH-C10 to C24 Aliphatics	--	--	--
TPH-Jet fuel A	--	--	--
TPH-Heavy Oil	--	--	--
TPH-Diesel (5)	--	--	100
TPH-Gasoline (5)	--	--	40
1,1,2-Trichloroethane	0.2	9,400	--
Trichloroethene (TCE)	1.6	21,900	0.003
1,2,4-Trimethylbenzene	12	12	--
1,3,5-Trimethylbenzene	12	12	--
Vinyl chloride	0.02	0.02	0.0007
m,p-Xylenes	--	--	10
o-Xylenes	--	--	9
Total xylenes	1400	1,400	10
Antimony	6	6	0.59
Arsenic	7.83	150	5.81
Barium	--	--	20,000
Beryllium	3.8	5.3	1.24
Cadmium	5	2.2	0.42
Chromium	145	74	39.2
Copper	1,300	9.0	10,000
Lead	15.7	2.5	200
Mercury	2	0.77	80
Nickel	100	52	34.4
Selenium	50	5.0	0.3
Silver	50	50	2
Thallium	2	40	0.67
Zinc	1,100	120	620

Notes:
Project Screening Goals were developed in the RI based on a comparison of regulatory criteria and background concentrations (ERM 2001a)
TPH - Total petroleum hydrocarbons
µg/l - Micrograms per liter
mg/kg - Milligrams per kilogram
-- - Standard not established

TABLE 3-2

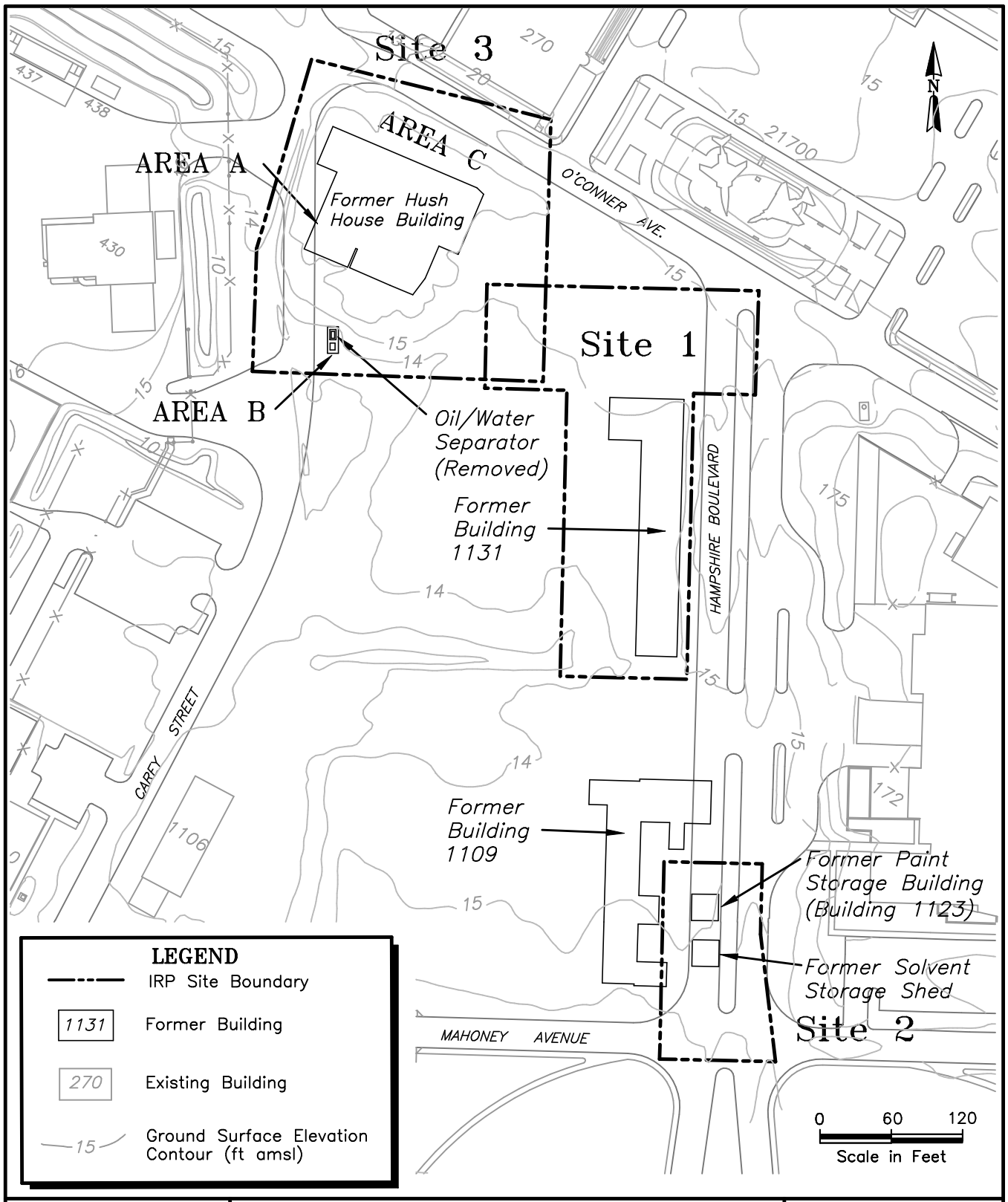
IRP Site Description Summary
142nd FW, Portland ANGB, Portland, Oregon

IRP Site	Site Name	Waste Disposal History	Nature and Extent of Contamination	Risk Assessment Results	Recommendation
1	Central Hazardous Waste Storage Area	Waste storage area for misc. wastes incl. waste oil, solvents, fuels, shop wastes, electrical transformers, and capacitors.	Low levels of TCE, PCE, and cis-1,2-DCE in Shallow Zone groundwater. Likely primary source is IRP Site 2.	Unacceptable total carcinogenic risk and noncarcinogenic hazard for hypothetical on-site residential exposure to groundwater (primarily vinyl chloride).	Soil: No further action. Groundwater: Remedial measures to prevent off-site migration and on-site exposure to groundwater with unacceptable concentrations.
2	Civil Engineering Hazardous Material Storage Area	Solvents, paint thinners, and MEK were stored in or near solvent storage shed; paint was stored in Building 1123.	VOCs not detected in soil samples. Chlorinated VOCs detected in both Shallow Zone and Deep Zone groundwater. Dissolved VOC plume extends approx. 750 feet to northwest and is approximately 400 feet wide.	Unacceptable total carcinogenic risk and noncarcinogenic hazard for hypothetical on-site residential exposure to groundwater (primarily vinyl chloride).	Soil: No further action. Groundwater: Remedial measures to prevent off-site migration and on-site exposure to groundwater with unacceptable concentrations.
3	Hush House Area	Waste oil, fuel, and solvents were stored at the Hush House on unpaved surface.	Area B: Benzene, SVOCs, TPH, and metals detected in shallow soil above PSGs near former oil / water separator. Naphthalene, benzene, and vinyl chloride detected in groundwater above PSGs. Area C: TPH detected in shallow soils.	Unacceptable total carcinogenic risk for hypothetical on-site residential exposure to soil (primarily benzo[a]pyrene and dibenz[a,h]anthracene) and groundwater (primarily benzene and vinyl chloride).	Soil: No further action. Groundwater: Remedial measures to prevent off-site migration and on-site exposure to groundwater with unacceptable concentrations.
4	Main Drainage Ditch	Petroleum and oil were reported in the Main Drainage Ditch downstream from the flight apron outfall in 1987. Ditch receives surface water runoff from adjacent facilities. No records of wastes being intentionally disposed of in the ditch.	SVOCs, TPH, and metals detected in sediment in Main Drainage Ditch above PSGs. Bromodichloromethane, antimony, cadmium, copper, lead, zinc, and cis-1,2-DCE detected in surface water above PSGs.	No unacceptable risks.	No further action.
5	Aerospace Ground Equipment Maintenance Shop	Spent battery acid, solvents, lubricants, antifreeze, cleaning solutions, and automobile fluids were generated at Maintenance Shop. Wastes may have been disposed of along the northern and southern fence lines. Former LUST contained heating oil.	Area A: Chloroform, 1,2-dichlorobenzene, TCE, toluene, and xylene detected in groundwater at low concentrations. Area B: 1,2-DCA, TCE, and metals detected above PSGs in surface and subsurface soil.	No unacceptable risks. One soil sample exceeded USEPA screening level for lead for an unrestricted use scenario.	No further action.
7	Burn Pit Area	Flammable liquids incl. waste oil, JP-4 jet fuel, and solvents were reportedly burned in the pit as part of fire training exercises.	BTEX, SVOCs, and TPH detected in soil in the burn pit area above PSGs. Benzene, PCE, and TPH detected in groundwater.	Unacceptable carcinogenic risk for hypothetical on-site residential exposure to soil (benzo[a]pyrene).	Soil: No further action. Groundwater: Collect one round of groundwater samples for PAH analysis using lower detection limits.
8	Sanitary Landfill	Wastes incl. ordinary shop and building refuse, paint cans, oil and paint residue, batteries, and broken equipment and parts were reportedly disposed of in trenches and buried.	Soil not sampled; evidence of landfilling not confirmed. No confirmed detections of PCBs, VOCs, SVOCs, or metals in groundwater above PSGs.	No unacceptable risks.	No further action.
9	Petroleum, Oil, and Lubricants Facility	Site consisted of 12 JP-4 USTS, 2 diesel ASTs, 1 waste oil UST, and filling stations.	Benzene, ethylbenzene, and PAHs in groundwater detected above PSGs.	Unacceptable total carcinogenic risk for hypothetical on-site residential exposure to soil (benzo[a]pyrene) and groundwater (primarily benzene and PAHs). Unacceptable noncarcinogenic hazard for hypothetical on-site residential exposure to groundwater (primarily benzene).	Soil: No further action. Groundwater: Remedial measures to prevent off-site migration and on-site exposure to groundwater with unacceptable concentrations.
10	Equipment Washrack	Liquids from equipment washing operations discharged via drain pipe to a roadside ditch.	Antimony, cadmium, lead, and selenium detected above PSGs in soil.	No unacceptable risks. One soil sample exceeded USEPA screening level for lead for an unrestricted use scenario.	No further action.
11	Washrack West of Building 250	Liquids from aircraft washing operations flowed from washrack area to the catch basin of the oil / water separator. Prior to removal, cracks were noticed in the oil / water separator.	Soil: Chlorinated VOCs, BTEX, TPH, and metals in area of former oil / water separator. Groundwater: VOCs and petroleum hydrocarbons in Shallow Zone; extend to northwest. Benzene, 1,2-DCA, cis-1,2-DCE, and vinyl chloride detected above PSGs in Deep Zone.	Unacceptable total carcinogenic risk and noncarcinogenic hazard for hypothetical on-site residential exposure to groundwater (primarily benzene, 1,2-DCA, and vinyl chloride).	Soil: In-situ treatment. Groundwater: Remedial measures to prevent off-site migration and on-site exposure to groundwater with unacceptable concentrations.

NOTES:

bgs - Below ground surface
ft - Feet
LUST - Leaking underground storage tank
PCB - Polychlorinated biphenyl
MEK - Methyl ethyl ketone
PCB - Polychlorinated Biphenyl
PSG - Project screening goal
UST - Underground storage tank
SVOC - Semivolatile organic compound
TPH - Total petroleum hydrocarbon
USEPA - United States Environmental Protection Agency
1,2-DCA - 1,2-Dichloroethane
AST - Aboveground storage tank
VOC - Volatile organic compound
TCE - Trichloroethylene
cis-1,2-DCE - cis-1,2-Dichloroethene
PCE - Tetrachloroethylene
PAH - Polynuclear aromatic hydrocarbon
BTEX - Benzene, toluene, ethylbenzene, and xylenes

IRP sites shown in blue are recommended for further evaluation in this Feasibility Study report. Groundwater issues at IRP Sites 1 and 3 are addressed under IRP Site 2



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IRP SITES 1, 2, and 3

142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-1

The surrounding area to the north and west of the site is grassy and unpaved. Hampshire Boulevard intersects the eastern part of the site and O'Conner Way borders the site on the north.

Building 1131 was a wooden structure that was used to store lawn maintenance equipment. An asphalt-paved area on the western side of the building was used for temporary storage of electrical transformers and other miscellaneous equipment.

Underground utility lines, including a new storm sewer, run along the eastern portion of the site. Surface water drains off-site through catch basins on the north and west sides of the site, flows into the Main Drainage Ditch along Carey Street, and is eventually pumped into the Columbia Slough from retention ponds at the west end of the Main Drainage Ditch.

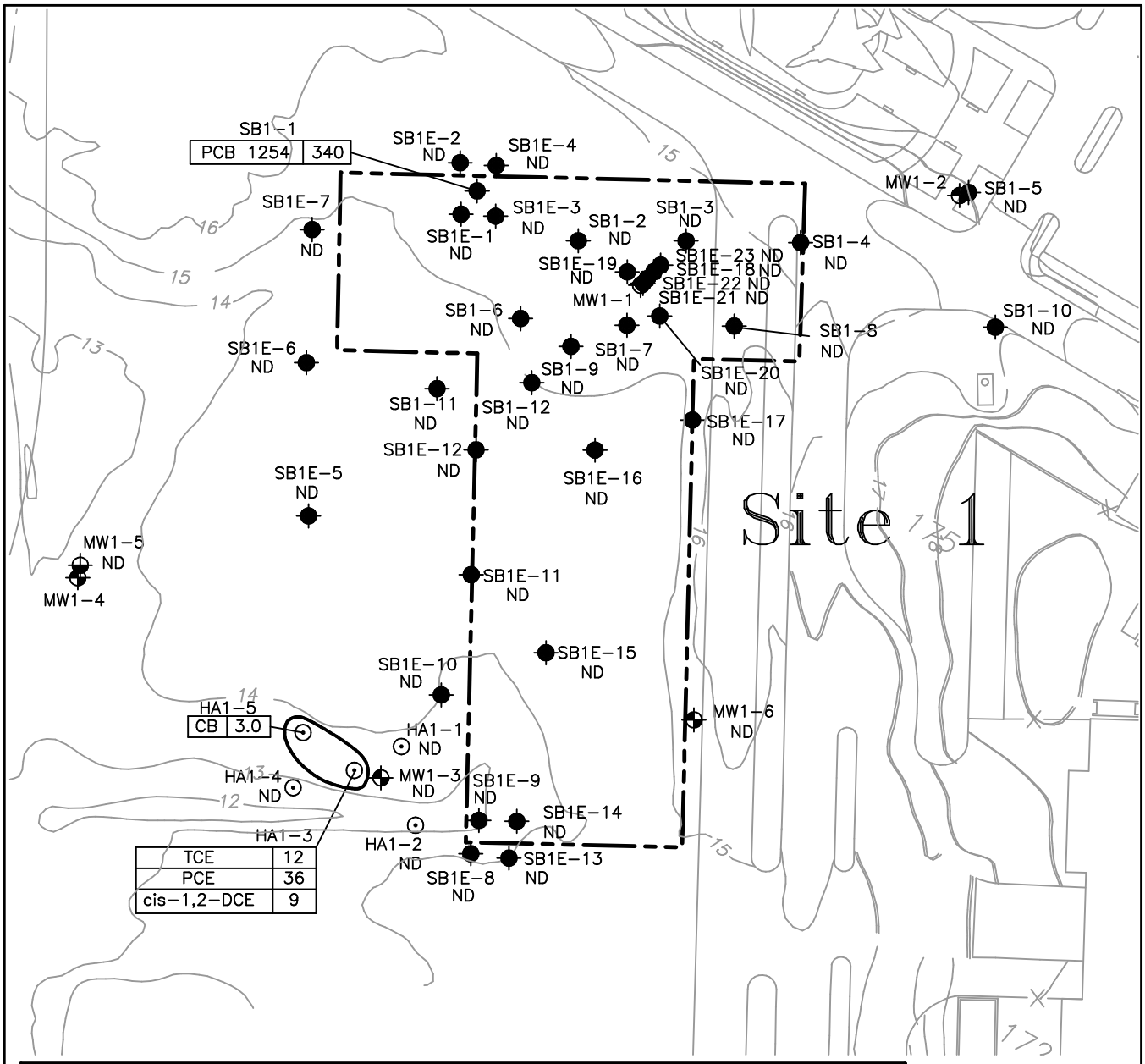
3.1.1 Waste Disposal History

Beginning in 1970, IRP Site 1 was used as a waste storage area for miscellaneous wastes including 55-gallon drums of waste oil, solvents, fuels, shop wastes, electrical transformers, and capacitors. Storage of these materials was suspended in approximately 1990.

3.1.2 Nature and Extent of Contamination

Cis-1,2-DCE and VC were the most prevalent VOCs detected in Shallow Zone groundwater proximal to IRP Site 1. In addition, cis-1,2-DCE was detected below the project screening goal (PSG) in Deep Zone well MW1-5 in July 2000. Based on the observed distribution of chlorinated VOCs in groundwater, IRP Site 2 appears to be the primary source area for the VOCs observed proximal to IRP Site 1. However, a potential secondary source was identified at Site 1 during the Phase II RI: low levels of TCE, tetrachloroethylene (PCE), and cis-1,2-DCE were detected in a soil sample collected within 10 feet of monitoring well MW1-3 (Figure 3-2). Degradation of the TCE detected in soil in this area could act as a source of cis-1,2-DCE and VC in groundwater. Additionally, the single detection of PCE in a sample from monitoring well MW1-3 in 1997 may be related to the PCE detected in soil.

Figure 3-3 shows the extent of VOCs in Shallow Zone groundwater at IRP Sites 1, 2, and 3, observed in April 2000. The VC concentration



LEGEND

MW1-1 — Monitoring Well, Shallow Zone

MW1-5 — Monitoring Well, Deep Zone

HA1-1 — Phase II RI Hand Auger Boring Sample

SB1-4 — SI Soil Boring Location (SAIC 1991)

Approximate Limit of Organic Compounds in Soil Above PSGs

ABBREVIATIONS

TCE – Trichloroethene

PCE – Tetrachloroethene

DCE – Dichloroethene

CB – Chlorobenzene

PCB 1254 – Polychlorinated Biphenyl-1254

ND – Not Detected

Concentrations in micrograms per kilogram (µg/kg)

270 Building ID

N

0 40 80

Scale in Feet

ERM

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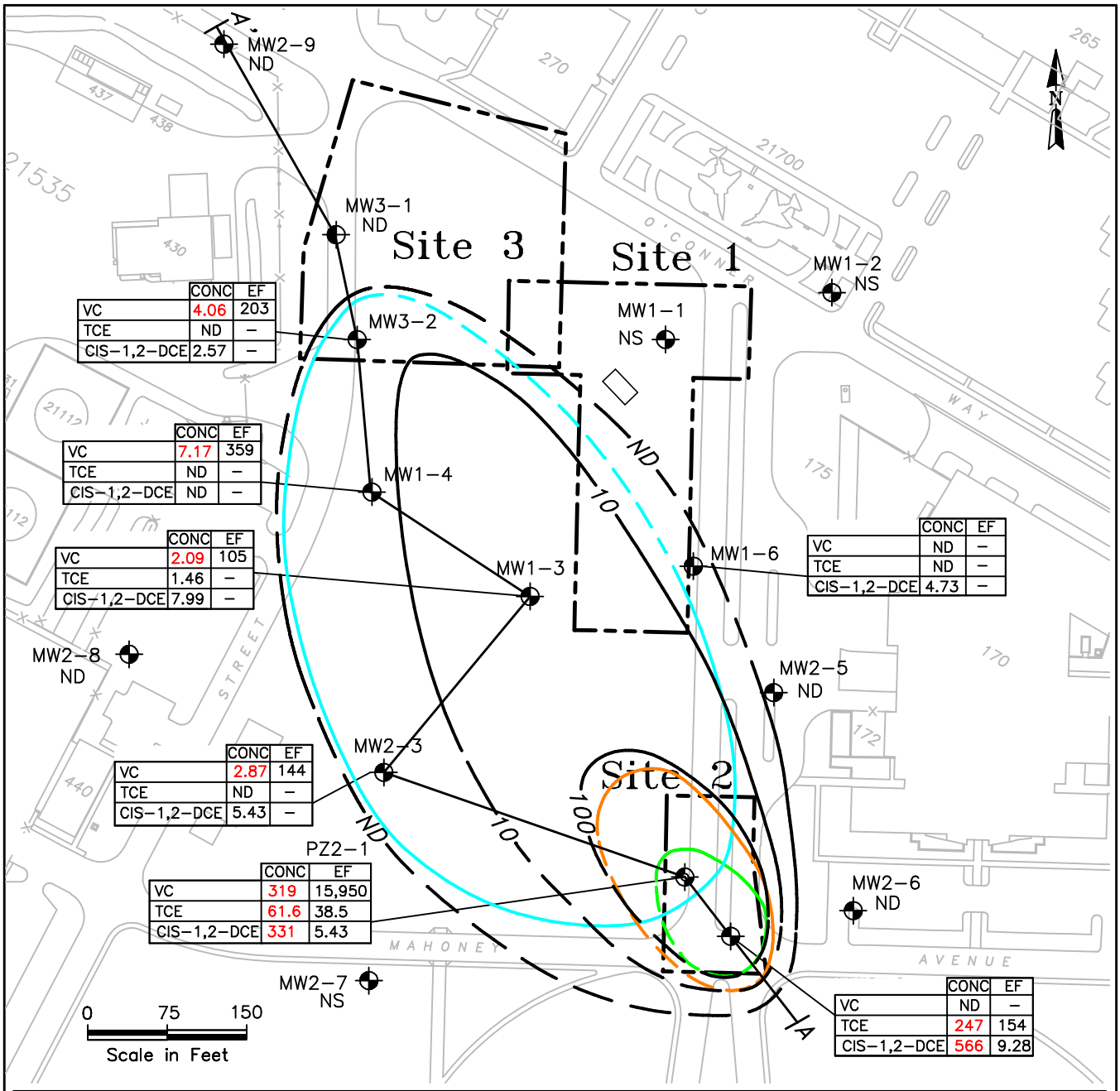
IRP SITE 1
EXTENT OF CONTAMINATION IN SOIL

142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-2



LEGEND

- Monitoring Well, Shallow Zone
- Monitoring Well, Floodplain Silt
- Piezometer, Shallow Zone
- ND Not Detected
- NS Not Sampled
- – Not Applicable
- J Estimated Value
- PSG Project Screening Goal
- CONC Concentration in µg/L. Values in Red Exceed PSGs.
- EF PSG Exceedence Factor

- Estimated Extent of Cis-1,2-Dichloroethene (CIS-1,2-DCE) > PSG (61 µg/L); Dashed Where Inferred
- Estimated Extent of Trichloroethene (TCE) > PSG (1.6 µg/L); Dashed Where Inferred
- Estimated Extent of Vinyl Chloride (VC) > PSG (0.02 µg/L); Dashed Where Inferred

- 270 Building ID
- IRP Site Boundary Line
- A — A' Hydrogeologic Cross-Section Line
- 10 Total Chlorinated Hydrocarbon Concentration Contour (µg/L); Dashed Where Inferred

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IRP SITES 1, 2, & 3
SHALLOW ZONE
APPROXIMATE EXTENT of SELECTED VOCs EXCEEDING PSGs
APRIL 2000
142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-3

in well MW1-3 decreased by an order of magnitude following the initial groundwater sampling event in January 1997, and remained relatively stable through July 1999; the concentration detected in January 2000 was 17.6 µg/l; the concentration detected in April 2000 was 2.09 µg/l. Concentrations of TCE and cis-1,2-DCE in well MW1-3 have remained relatively stable throughout the monitoring program.

3.1.3 Risk Assessment Results

The results of the risk characterization for IRP Site 1 indicate the following:

- The estimated carcinogenic risks for Base workers, construction workers, and reservists are within the range of acceptable risk levels established by the USEPA (i.e., 1×10^{-6} to 1×10^{-4}).[1] Thus, the risks associated with the defined exposures are acceptable under USEPA guidelines. The carcinogenic risks for Base workers, construction workers, and reservists are also less than the ODEQ benchmark of 1×10^{-5} for total risk (i.e., exposure to multiple constituents and/or exposure via multiple pathways), indicating that the estimated carcinogenic risks are acceptable under ODEQ regulations.

- The estimated noncarcinogenic hazards for Base workers, construction workers, and reservists are below the USEPA and ODEQ acceptable hazard level (i.e., the calculated hazard indices are less than 1). Consistent with USEPA guidelines, this indicates that no adverse health effects are anticipated to occur under the defined conditions of exposure.

- The potential carcinogenic risk and noncarcinogenic hazard associated with soil exposures under a conservative residential scenario are less than USEPA and ODEQ guidelines for evaluation of acceptable risk. However, the total carcinogenic risk and noncarcinogenic hazard for hypothetical on-site residents exceed both USEPA and ODEQ levels of acceptable risk, as a result of assumed exposures to groundwater under the residential-use scenario. The risk is primarily associated with the presence of VC in groundwater. By extension of the results

[1] A risk of 1×10^{-6} indicates that there is an upper bound probability of 1 in 1,000,000 (one million) that an individual will develop cancer during his or her lifetime as a result of the defined conditions of exposure. Because of the conservatism of the assumptions used to derive risk estimates, any actual risks associated with a defined exposure are expected to be lower than the estimated risks (USEPA 1989).

for the on-site residential scenario, the potential future risks to off-site residents related to the possible off-site migration and residential use of contaminated groundwater also exceed USEPA and ODEQ criteria.

3.1.4 Recommendation

The risks associated with soil at IRP Site 1 have been determined to be acceptable for all anticipated land-use scenarios. It is therefore recommended that no further action be performed related to soil.

The results of previous investigations at IRP Site 1 have indicated that the VOCs detected in Shallow Zone and Deep Zone groundwater at this site are primarily associated with a VOC plume originating from IRP Site 2. Accordingly, remedial alternatives developed for the VOCs in IRP Site 2 groundwater will include the area of the plume that has migrated onto IRP Site 1.

3.2 IRP Site 2 - Civil Engineering Hazardous Material Storage Area

The former Civil Engineering Hazardous Material Storage Area is east of former Building 1109, as shown on Figure 3-1. The site includes the former locations of the solvent storage shed and the paint storage building (Building 1123). The PA report (HMTC 1987) defined IRP Site 2 as the area between the storage shed and Building 1123; however, during the SI it was determined that the storage shed itself may also have been a source of contamination (SAIC 1991). The solvent storage shed consisted of an open-walled structure with a gravel floor. The storage shed and Building 1123 were removed during non-IRP-related construction activities.

Currently, IRP Site 2 is situated largely in the roadway of Hampshire Boulevard immediately north of the intersection with Mahoney Avenue. The former locations of the solvent storage shed and Building 1123 are in the southbound lanes of Hampshire Boulevard. Underground utilities and storm drains run along the eastern and western sides of Hampshire Boulevard. Site topography is relatively flat.

3.2.1 Waste Disposal History

Drums containing solvents, paint thinners, and methyl ethyl ketone were stored on wooden pallets in the solvent storage shed, and on a rack within the shed (HMTC 1987); paint was stored in Building 1123. There are no reports of waste disposal activities.

3.2.2 Nature and Extent of Contamination

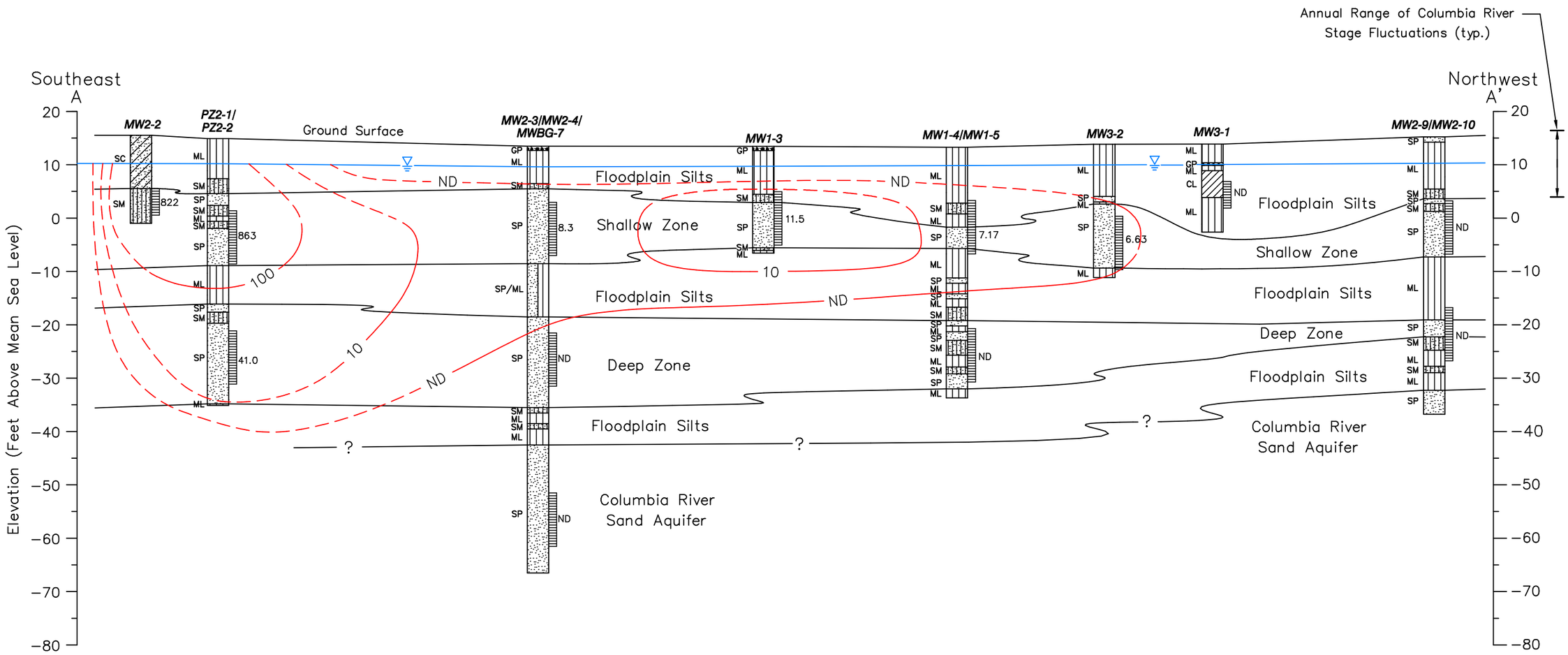
Chlorinated VOCs (primarily TCE; cis-1,2-DCE; and VC) were detected in groundwater in both the Shallow Zone and the Deep Zone at IRP Site 2. The highest concentrations of TCE; cis-1,2-DCE; and VC were detected near the former location of the solvent storage shed. This suggests that the dissolved VOCs originated from past releases in the vicinity of the solvent storage shed. VOCs were not detected in soil samples collected in this area during the Phase II RI, possibly because near-surface soils at Site 2 were removed during road construction activities.

The groundwater data indicate that dissolved VOCs have migrated mainly toward the northwest from the apparent source area at IRP Site 2. This migration pattern is consistent with the local direction of groundwater flow in the Shallow Zone. The dissolved VOC plume extends approximately 750 feet downgradient of IRP Site 2, and is approximately 400 feet wide. Figures 3-3 and 3-4 show the lateral and vertical extent of chlorinated hydrocarbons in groundwater. The absence or relatively low concentrations of VOCs in direct-push groundwater samples collected to the southwest, south, and southeast of Site 2 provides additional evidence that the VOC source area is at Site 2.

Concentrations of TCE and cis-1,2-DCE have varied significantly in source-area Shallow zone wells MW2-1 and MW2-2 over the monitoring period; concentrations of VC in piezometer PZ2-1 have also varied significantly.

Deep Zone wells / piezometers in the vicinity of IRP Site 2 include PZ2-2, MW2-4, MW1-5, and MW2-10. The consistent detections of VC above the PSG in piezometer PZ2-2, and the cis-1,2-DCE detections in wells MW1-5 and MW2-10 in July 2000, indicate that dissolved VOCs have migrated to the Deep Zone directly beneath and northwest of IRP Site 2.

There have been no confirmed detections of contaminants in the CRSA wells in the vicinity of IRP Site 2 (MWBG-7 and MWBG-10).



Note: See Figure 3-5 for Cross Section Orientation

Legend

27.5	Total Chlorinated Hydrocarbon Concentration (TCH) in April 2000 (µg/L)
	Screened Interval
	April 2000 Water Level in Shallow Zone
10	Line of Equal TCH Concentration (µg/L); Location Approximate; Dashed Where Inferred
ND	Not Detected
NS	Not Sampled
	Gravelly Clay/Sandy Clay/Silty Clay/Clay
	Silt/Clayey Silt/Sandy Silt
	Clayey Sand
	Silty Sand
	Gravelly Sand/Sand
	Gravel/Sandy Gravel

0 100
Feet
Vertical Exaggeration = 5x

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IRP SITES 1, 2, AND 3
VERTICAL DISTRIBUTION OF TOTAL CHLORINATED HYDROCARBONS IN GROUNDWATER
APRIL 2000
142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-4

A source of the total petroleum hydrocarbon (TPH) as diesel detected in groundwater samples from several of the IRP Site 2 monitoring wells was not identified in soil. Soils containing residual hydrocarbons may have been removed during road construction activities. During monitoring events conducted in February 1998 and March 1999, TPH as diesel was detected in samples from monitoring well MW2-7, located immediately north of IRP Site 9. The presence of TPH as diesel at this well may be related to petroleum contamination identified at IRP Site 9.

With the exception of isolated detections of benzene (0.7 to 3 µg/l) in piezometers PZ2-1 and PZ2-2, and a single detection of toluene (0.6 µg/l) in piezometer PZ2-1, petroleum-related VOCs and semivolatile organic compounds (SVOCs) were not detected in the IRP Site 2 monitoring wells.

Buried utilities are present near IRP Site 2, particularly at the intersection of Mahoney Avenue and Hampshire Boulevard. These utilities may provide a preferential pathway for VOC vapors to travel a small distance away from the source of those vapors. If deep enough, the utility channels may allow groundwater to flow a short distance away from the general flow path. However, would need to be buried at the depth required (below approximately 12 feet bgs) to have any effect on groundwater contaminant flow direction. The apparent contaminant distribution from the source area at IRP Site 2 is relatively uniform, indicating that preferential pathways resulting from the presence of buried utilities are not affecting distribution of contaminants. Remedial action at this site will require consideration of the presence of buried utilities.

3.2.3 Risk Assessment Results

The results of the risk characterization for IRP Site 2 indicate the following:

- Both the estimated carcinogenic risks and the noncarcinogenic hazards are acceptable for Base workers, construction workers, and reservists under USEPA and ODEQ guidelines.

- The potential carcinogenic risk and noncarcinogenic hazard associated with soil exposures under a conservative residential scenario are less than USEPA and ODEQ guidelines for evaluation of acceptable risk. However, the total carcinogenic risk and noncarcinogenic hazard for hypothetical on-site residents exceed both USEPA and ODEQ levels of acceptable risk, as a result of assumed exposures to groundwater under the residential-use scenario. The risk is primarily associated

with the presence of VC in groundwater. By extension of the results for the on-site residential scenario, the potential future risks to off-site residents related to the possible off-site migration and residential use of contaminated groundwater also exceed USEPA and ODEQ criteria.

- Reported lead concentrations in soil were below the USEPA screening level of 400 milligrams per kilogram (mg/kg) for an unrestricted-use scenario (USEPA Region 9 2000); thus lead in soil is not expected to pose an unacceptable risk.

3.2.4 Recommendation

The risks associated with soil at IRP Site 2 have been determined to be acceptable for all anticipated land-use scenarios. It is therefore recommended that no further action be performed related to soil.

As discussed, previous investigations have indicated that the VOCs in groundwater in the area of IRP Sites 1 and 2 have originated from releases at the former solvent storage shed at IRP Site 2. In addition, previous investigations also indicate a probably correlation between VOCs in groundwater at IRP Site 3 (as discussed in Section 3.3) and releases at the former solvent storage shed. As such, the VOCs in groundwater at IRP Sites 1, 2, and 3 will be addressed in this FS as one plume, and referred to as IRP Site 2 groundwater.

Anticipating the need to conduct an FS for groundwater at IRP Site 2, the IRAC program described in Section 2.8.2 was initiated for the purpose of providing data from which to base decisions made during the FS process. The first phase of the IRAC provided bench- and pilot-scale treatability data indicating that chemical and biological treatment technologies are effective at reducing VOC concentrations in groundwater at IRP Site 2. Using these results, a presumptive approach was taken to select potential remedies for VOCs in groundwater. The second phase of the IRAC program is expected to be conducted during the fall of 2001 and will provide full-scale treatability data to be used to adjust some of the recommendations made during this FS prior to full-scale RA construction.

The second phase of the IRAC program is also intended to significantly reduce the mass of VOCs at IRP Site 2. The full-scale demonstration will focus on a large area of Shallow Zone groundwater containing the highest concentrations of VOCs (ERM 2001d). Implementation of this demonstration is expected to reduce the potential for migration of VOCs to downgradient areas of the Shallow Zone and to the Deep Zone.

Although a significant reduction of VOCs is expected during the second phase of the IRAC program, a conservative position is taken in this FS by not considering this reduction during the development and evaluation of the remedial alternatives presented later in the document.

Due to the extent and concentrations of VOCs in Shallow Zone and Deep Zone groundwater originating from IRP Site 2, remedial alternatives were developed based on technologies known to be effective at treating VOCs in groundwater. Identification and screening of technologies are presented in section 4.0 of this FS. Development and evaluation of remedial alternatives are presented in section 5.0 of this FS.

3.3 IRP Site 3 - Hush House Area

The former Hush House Area is at the southeast corner of the intersection of Carey Street and O'Conner Way, as shown on Figure 3-1. The Hush House building was used to test the performance of jet engines. An oil/water separator existed approximately 75 feet south of the Hush House. An exhaust tower and associated piping from the condensation system drained into the oil/water separator and a holding tank.

During the SI, the former Hush House building was designated as Area A, the oil/water separator was designated as Area B, and an area to the northeast of the former Hush House, where petroleum hydrocarbon contamination was encountered during construction activities, was designated as Area C.

The ground surface across most of IRP Site 3 is approximately 2 to 3 feet higher than the surrounding area, and generally slopes toward the south and east. Site surface water drains into the Main Drainage Ditch through a culvert that passes under Carey Street to the west.

3.3.1 Waste Disposal History

Drums of waste oil, fuel, and solvents were reportedly stored at the southwest corner of the Hush House on an unpaved surface (SAIC 1991). Base personnel interviewed during the PA indicated that the oil/water separator did not function properly. No records were available concerning removal of liquids from the separator or the associated holding tank (HMTC 1987).

3.3.2 Nature and Extent of Contamination

The results of the Phase II RI and previous investigations at IRP Site 3 are discussed below.

3.3.2.1 Area A, Former Hush House Building

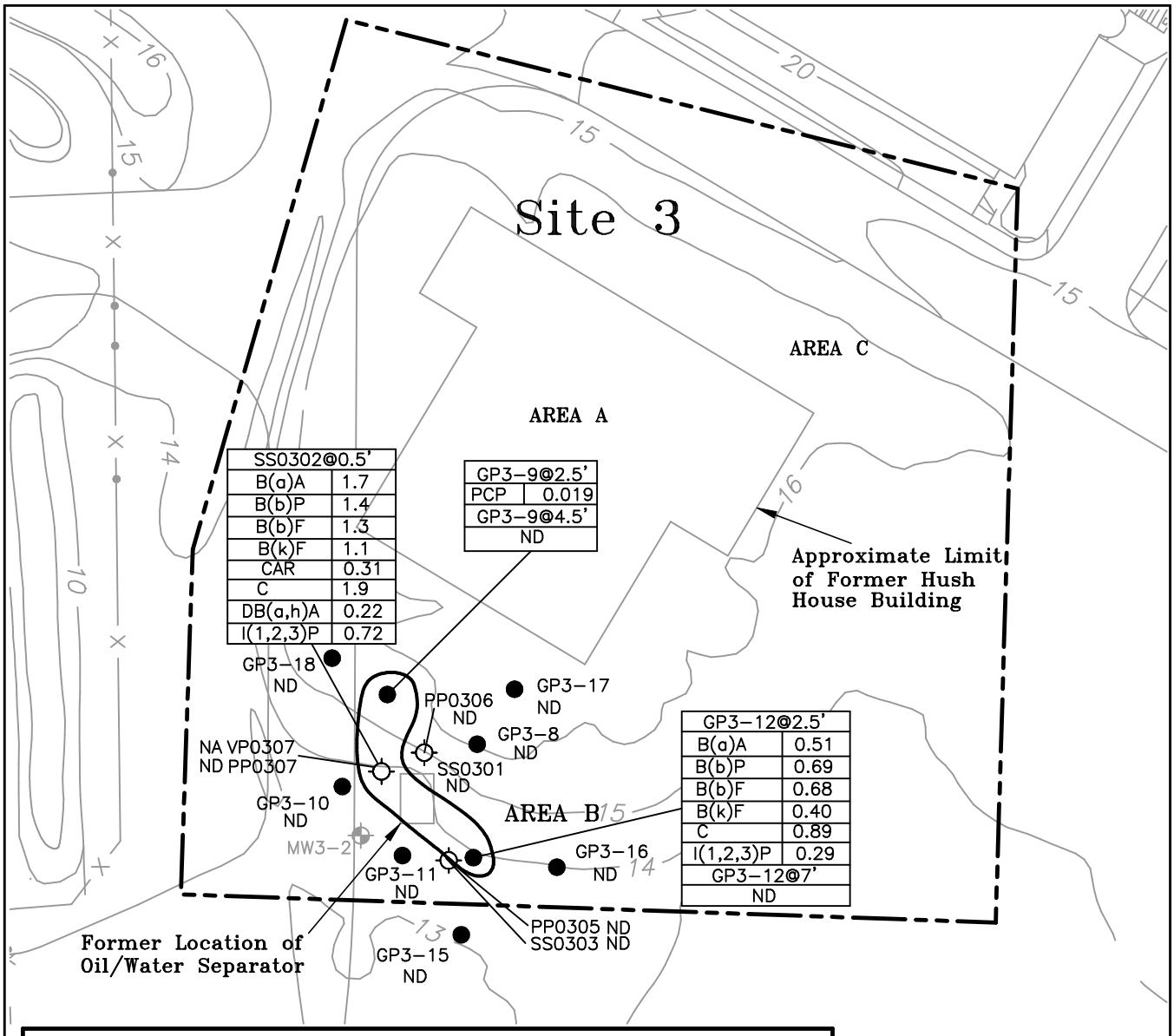
No confirmed contaminants were detected in the soil and groundwater samples collected at Area A during the SI, consequently, no further investigation of this area was performed during the Phase I or II RIs.

3.3.2.2 Area B, Former Oil/Water Separator

Constituents detected above PSGs in soil samples collected at Area B include benzene, petroleum-related SVOCs, TPH as diesel, and metals. SVOC, TPH, and metal concentrations detected in soil samples are shown on Figures 3-5, 3-6, and 3-7 respectively. The RI sampling indicates that the lateral extent of soils impacted by compounds exceeding PSGs is limited to within 30 to 40 feet of the former oil / water separator. Although the lateral extents of TPH and SVOC impacts are almost identical, the data indicate that the maximum TPH concentrations occur at a depth of approximately 8 feet bgs, whereas SVOCs are primarily limited to the upper 2.5 to 3 feet of soil. Metal concentrations exceeding PSGs also are limited to the upper 2.5 to 3 feet of soil.

Petroleum-related SVOCs and TPH as diesel were detected in soils potentially in contact with groundwater. However, only naphthalene and benzene were detected above PSGs in groundwater samples. The naphthalene and benzene were detected close to borings PP0306 and PP0307, in which the highest TPH concentrations in soil were detected close to the water table. TPH-related groundwater impacts are limited to within 10 to 20 feet of the former oil / water separator.

Although VC and other chlorinated VOCs were detected in groundwater at Area B, chlorinated VOCs were not detected in soil. This indicates that the former oil / water separator is not likely a source of the chlorinated VOCs. Further, the presence of chlorinated VOCs in groundwater at IRP Site 3 is likely associated with Site 2 groundwater (Figure 3-3).



LEGEND

- Monitoring Well, Shallow Zone
- Phase I RI Direct-Push Point (OpTech 1996)
- Phase II RI Direct-Push Point
- 270 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)
- IRP Site Boundary
- Approximate limit of SVOCs in Soil above PSGs

ABBREVIATIONS

B(a)A – Benzo(a)anthracene
B(a)P – Benzo(a)pyrene
B(b)F – Benzo(b)fluoranthene
B(k)F – Benzo(k)fluoranthene
CAR – Carbazole
C – Chrysene
DB(a,h)A – Dibenzo(a,h)anthracene
I(1,2,3)P – Indeno(1,2,3-c,d)pyrene
PCP – Pentachlorophenol
ND – Not Detected
NA – Not Analyzed

Concentrations in milligrams per kilogram (mg/kg)

N

0 25 50
Scale in Feet

ERM

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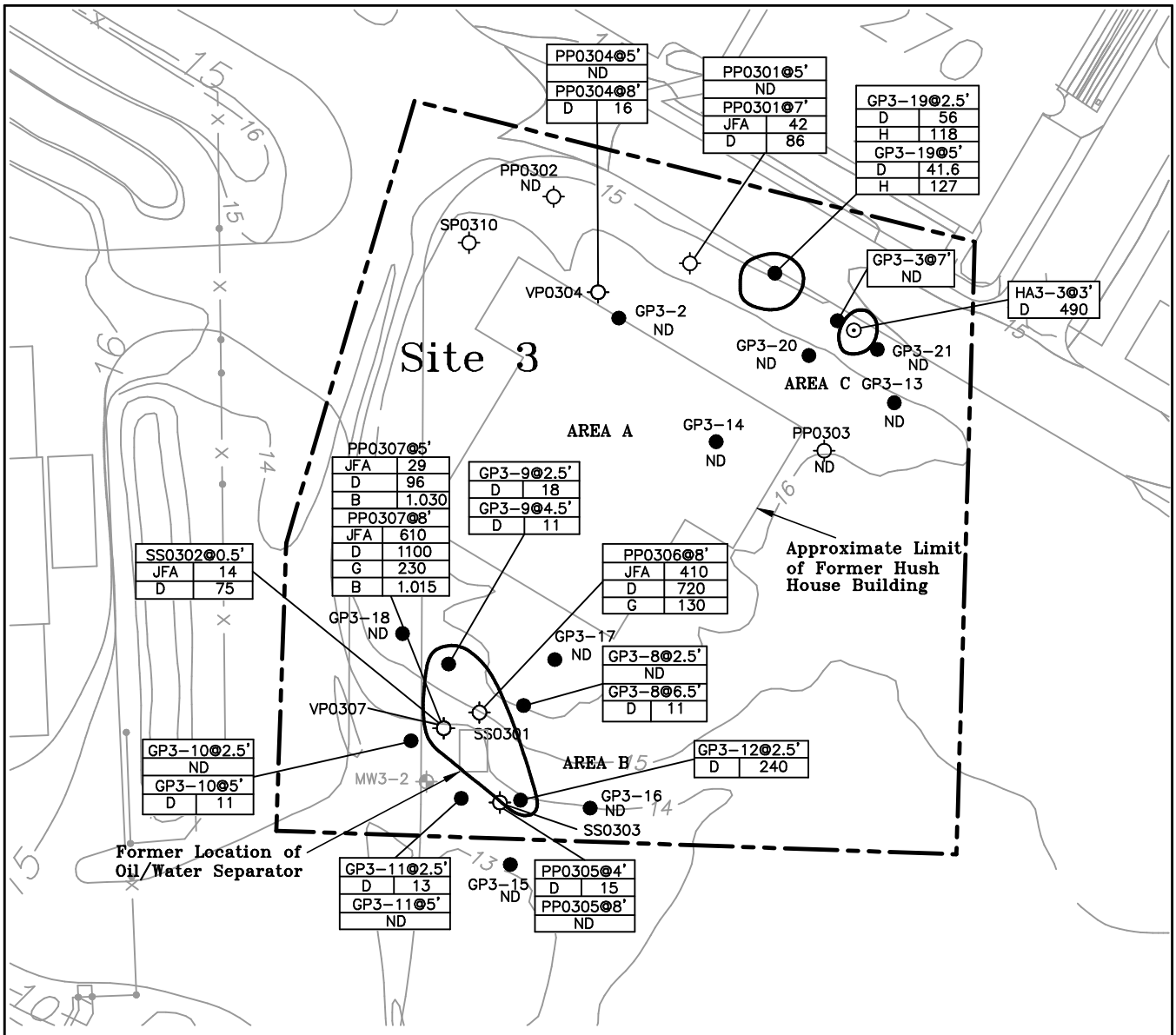
IRP SITE 3
EXTENT OF SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL
142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-5



LEGEND

- Monitoring Well, Shallow Zone
- Phase I RI Direct-Push Point (OpTech 1996)
- Phase II RI Direct-Push Point
- 270 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)
- IRP Site Boundary

ABBREVIATIONS

B – Benzene
D – Diesel
G – Gasoline
JFA – Jet Fuel A
ND – Not Detected

Approximate limit of TPH and BTEX in Soil above PSGs

Concentrations in milligrams per kilogram (mg/kg)

N

0 30 60

Scale in Feet

ERM

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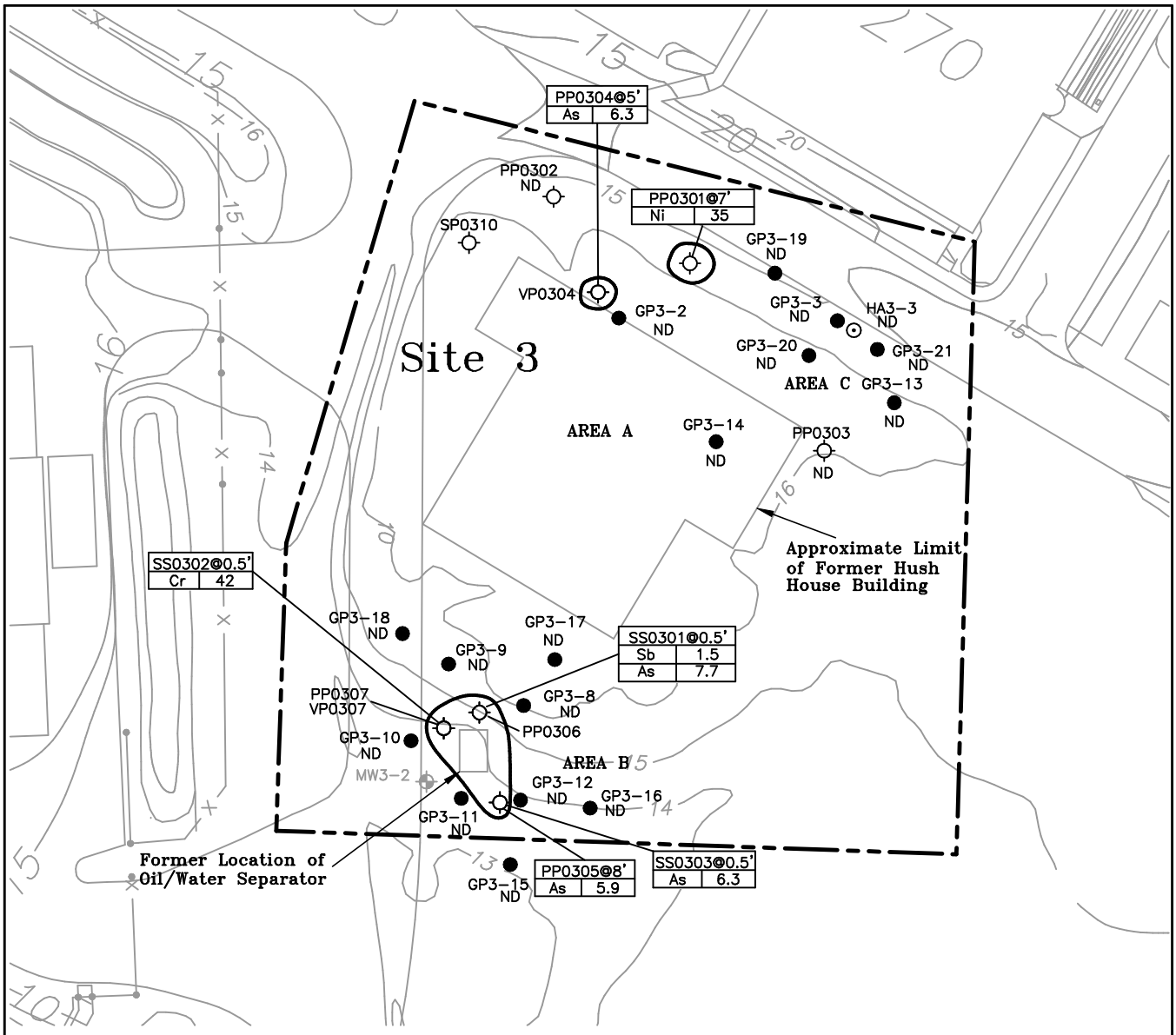
IRP SITE 3
EXTENT OF TOTAL PETROLEUM HYDROCARBONS IN SOIL
142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-6



LEGEND

- Monitoring Well, Shallow Zone
- Phase I RI Direct-Push Point (OpTech 1996)
- Phase II RI Direct-Push Point
- 270 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)
- IRP Site Boundary

ABBREVIATIONS

As – Arsenic
Cr – Chromium
Ni – Nickel
Sb – Antimony
ND – Not Detected

Approximate limit of Metals in Soil above PSGs

Concentrations in milligrams per kilogram (mg/kg)

N

0 30 60

Scale in Feet

ERM

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IRP SITE 3

EXTENT OF METALS IN SOIL

142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-7

3.3.2.3 Area C, Construction Area

TPH as Jet Fuel A, TPH as diesel, and/or TPH as heavy oil were detected in soil samples collected from borings PP0301, PP0304, and HA3-3. Detections above PSGs include TPH as diesel (490 mg/kg) in the sample collected from 3 feet bgs in boring HA3-3, and TPH as heavy oil in the samples collected from 2.5 feet bgs (118 mg/kg) and 5 feet bgs (127 mg/kg) in boring GP3-19. TPH detections in soil are shown on Figure 3-6. VOCs and SVOCs were not detected in the groundwater sample collected from boring GP3-3.

3.3.3 Risk Assessment Results

The results of the risk characterization for IRP Site 3 indicate the following:

- Both the estimated carcinogenic risks and the noncarcinogenic hazards are acceptable for Base workers, construction workers, and reservists under USEPA and ODEQ guidelines.

- The total estimated carcinogenic risk for hypothetical on-site residents exceeds USEPA and ODEQ acceptable levels, primarily as a result of assumed exposures to benzo(a)pyrene and dibenz(a,h)anthracene in soil and benzene and VC in groundwater under this scenario. By extension of the results for the on-site residential scenario, the potential future carcinogenic risk to off-site residents related to the possible off-site migration and residential use of contaminated groundwater also exceeds USEPA and ODEQ criteria. The total noncarcinogenic hazard is acceptable for both hypothetical on-site residents and off-site residents under USEPA and ODEQ guidelines.

- Reported lead concentrations in soil were below the USEPA screening level for an unrestricted-use scenario; thus lead in soil is not expected to pose an unacceptable risk.

3.3.4 Recommendation

No confirmed contaminants have been detected in soil or groundwater at Area A. It is therefore recommended that no further action be performed at this location.

Soil at Area B in the location of the former oil/water separator contains several contaminants above the PSGs. However, the risk associated with soil in this area is acceptable based on an industrial land-use scenario. It is not expected that the industrial land use of this area will change in the near future (City of Portland 2000).

The results of previous investigations at Area B have indicated that the VOCs detected in groundwater at this site are primarily associated with the VOC plume originating from IRP Site 2, rather than from soil contamination at Area B. As previously mentioned, the area of the plume that has migrated onto IRP Site 3 will be addressed in the remedial alternatives developed for VOCs in IRP Site 2 groundwater.

Area C soil has had detections of petroleum hydrocarbons exceeding the respective PSGs for these constituents. However, because of the small volume of impacted soil and the current and anticipated industrial land use, it is recommended that no further action be performed at this location.

3.4 IRP Site 4 - Main Drainage Ditch

The Main Drainage Ditch in the western-central portion of the Portland ANGB receives surface water runoff from catch basins and drainage ditches across most of the Base. The water in the Main Drainage Ditch flows to two retention ponds near the western Base boundary. Water from the retention ponds is pumped into a ditch west of the Base that discharges into the Columbia Slough.

3.4.1 Waste Disposal History

During initial field surveillance activities and sampling, HMTC (1987) reported the presence of petroleum and oil in the Main Drainage Ditch downstream from the flight apron outfall. Accidental spillage, indirect discharge, and wash water containing residual contaminants from facilities adjacent to the ditch may have impacted storm water and sediments in the ditch (SAIC 1991). There are no records of wastes being intentionally disposed of in the ditch.

3.4.2 Nature and Extent of Contamination

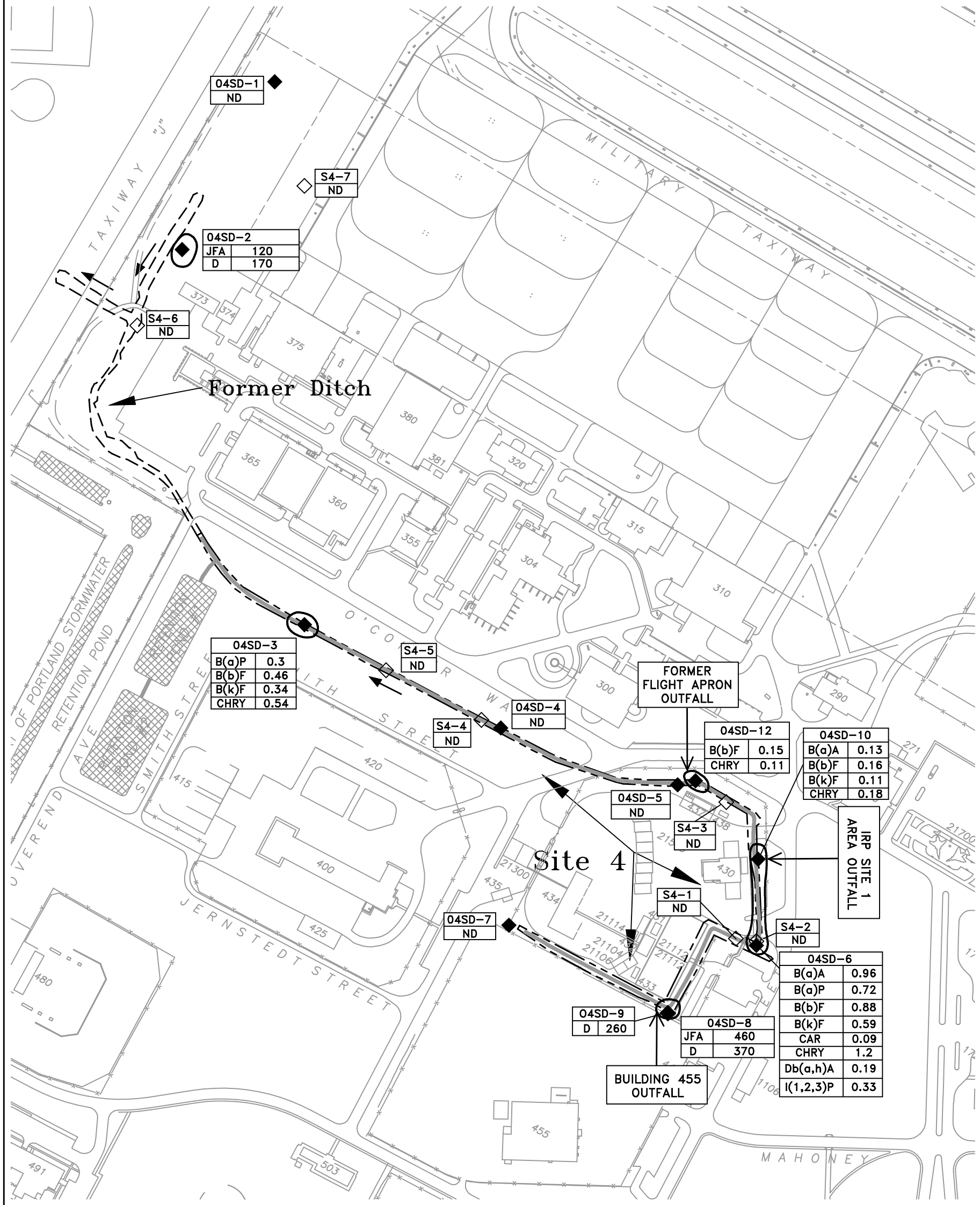
Investigation results at IRP Site 4 indicate that sediment in the Main Drainage Ditch contains SVOCs, TPH, and metals above the respective PSGs. Surface water samples collected at Site 4 during the RI were found to contain bromodichloromethane, cis-1,2-DCE, antimony, cadmium, copper, lead, and/or zinc above the respective PSGs.

The majority and highest concentrations of SVOCs were detected in sediment in the eastern portion of the ditch (samples 04SD-6, 04SD-9, 04SD-10, and 04SD-12). This portion of the ditch receives surface runoff from several storm drain outfalls (Figure 3-8). SVOCs also were detected above respective PSGs in sediment sample 04SD-3 collected near the central portion of the ditch. SVOCs, however, either were not detected or were detected below PSGs in the two sediment samples (04SD-4 and 04SD-5) collected immediately upstream of this location. The source of the SVOCs detected in sample 04SD-3 is unclear.

TPH as diesel was detected above the PSG in three sediment samples (04SD-2, 04SD-8, and 04SD-9) collected from the Main Drainage Ditch (Figure 3-8). Sample 04SD-2 was collected at the former west end of the ditch at the discharge point for surface water runoff originating from the Base parking lots. Samples 04SD-8 and 04SD-9 were collected at the east end of the ditch, below the outfall of a drain line that originates in the area of the Base motor pool (Building 455). The highest concentration of TPH as diesel detected was 370 mg/kg (sample 04SD-8).

Metals were detected above respective PSGs in the majority of the sediment samples collected from the Main Drainage Ditch (Figure 3-9). Cadmium was the metal most frequently detected above PSGs. The highest concentrations of metals were detected in sample 04SD-8, which was collected below the Building 455 outfall.

Bromodichloromethane and dissolved metals (antimony, cadmium, copper, lead, and zinc) were detected above respective PSGs in surface water samples collected during the Phase I RI. Cis-1,2-DCE was detected above the PSG in one surface water sample, and zinc was detected above the PSG in two surface water samples collected during the Phase II RI. The presence of detectable organic compounds and metals in the ditch water likely depends on a variety of factors, including seasonal precipitation patterns and surface water flow rates. Metals detected above PSGs in surface water are shown on Figure 3-10. There is no apparent correlation between the concentrations of metals detected in surface water and those detected in sediment near the same locations.



LEGEND

- Retention Pond
- ◆ 04SD-1 — Phase I RI Sediment Sampling Location (OpTech 1996)
- ◇ S4-1 — SI Sediment Sampling Location (SAIC 1991)
- Approximate Extent of Organic Compounds Above PSGs in Sediment
- Direction of Water Flow
- Drainline Out-Fall
- IRP Site Boundary

ABBREVIATIONS

JFA – Jet Fuel A
D – Diesel
B(a)A – Benzo(a)anthracene
B(a)P – Benzo(a)pyrene
B(b)F – Benzo(b)fluoranthene
B(k)F – Benzo(k)fluoranthene
CAR – Carbazole
CHRY – Chrysene
Db(a,h)A – Dibenzo(a,h)anthracene
I(1,2,3)P – Indeno(1,2,3-CD)pyrene

Concentrations in milligrams per kilogram (mg/kg)

N

0 125 250
Scale in Feet

ERM

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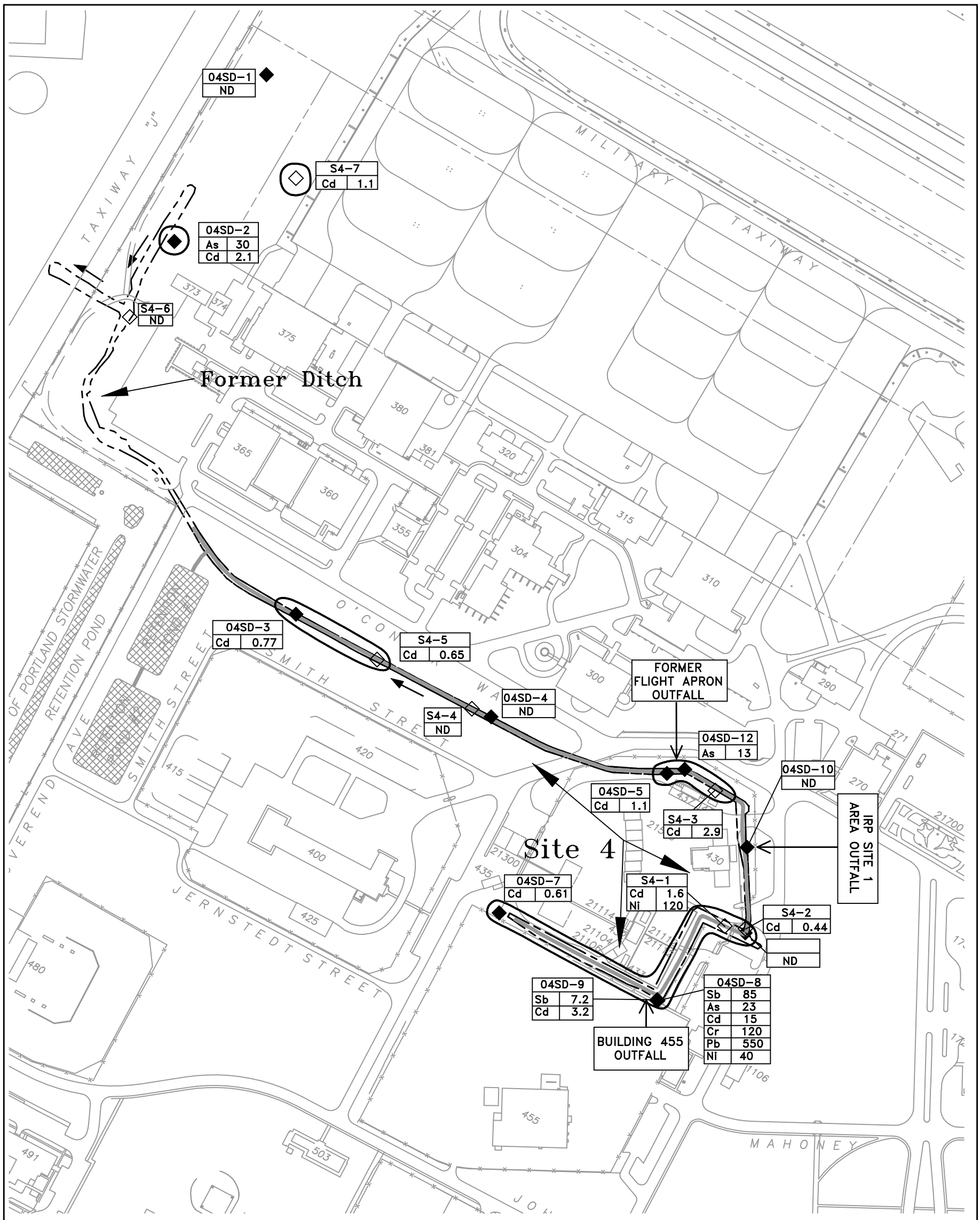
IRP SITE 4
EXTENT OF ORGANIC COMPOUNDS IN SEDIMENT

142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-8



LEGEND

- Retention Pond
- 04SD-1 — Phase I RI Sediment Sampling Location (OpTech 1996)
- S4-1 — SI Sediment Sampling Location (SAIC 1991)
- Approximate Extent of Metals Above PSGs in Sediment
- Direction of Water Flow
- Drainline Out-Fall
- IRP Site Boundary

ABBREVIATIONS

Sb – Antimony
As – Arsenic
Cd – Cadmium
Cr – Chromium
Ni – Nickel
Pb – Lead
ND – Not Detected

Concentrations in milligrams per kilogram (mg/kg)

N

0 125 250

Scale in Feet

ERM

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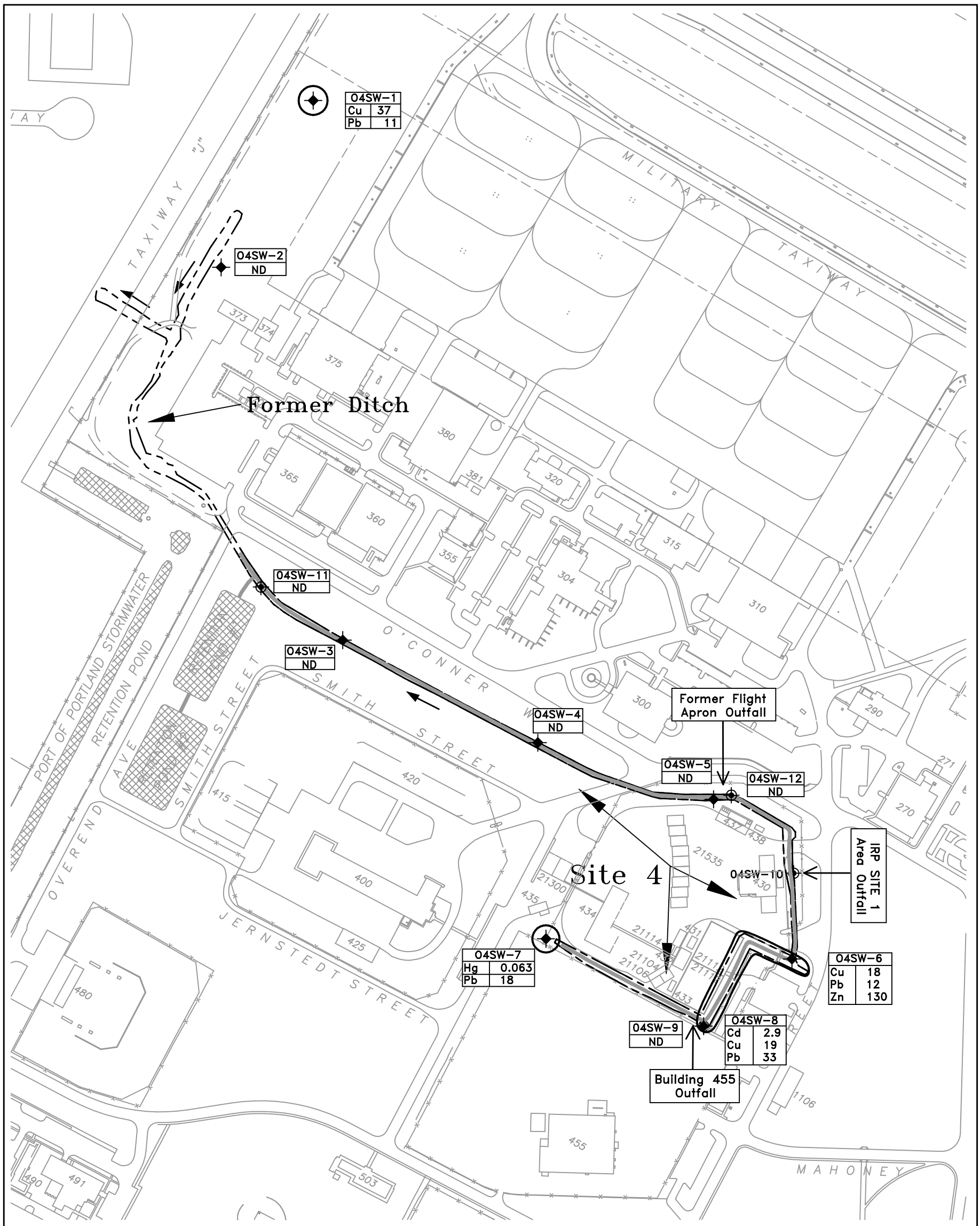
IRP SITE 4
EXTENT OF METALS IN SEDIMENT

142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-9



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IRP SITE 4
EXTENT OF METALS IN SURFACE WATER

142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-10

3.4.3 Risk Assessment Results

The results of the risk characterization for IRP Site 4 indicate that the estimated carcinogenic risk and the noncarcinogenic hazard are acceptable for construction workers under USEPA and ODEQ guidelines. The results of the screening-level ecological risk assessment indicate that contaminants detected in surface water and sediment in the Main Drainage Ditch do not pose unacceptable risks to on-site ecological receptors. However, because off-site habitats are considered to be of moderate-to-high value to wildlife, further monitoring of the potential for contaminants to migrate from the Main Drainage Ditch to off-site habitats is warranted. In addition, a Level II (screening) ecological risk assessment is planned to further evaluate potential risks to ecological receptors at the Main Drainage Ditch.

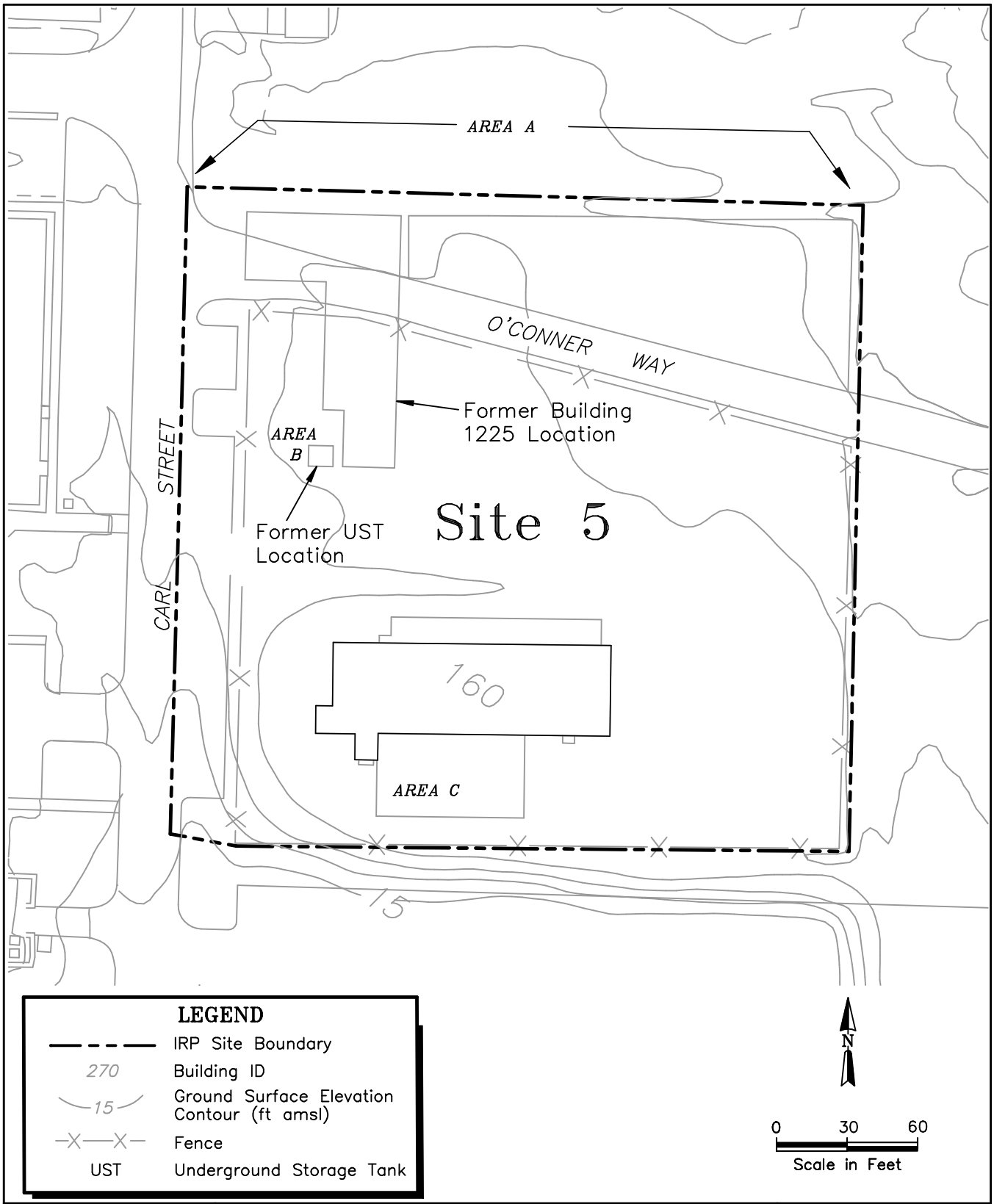
3.4.4 Recommendation

No unacceptable risks were identified at IRP Site 4. However, based on a recommendation made in the RI, monitoring of the potential for contaminants to migrate from the Main Drainage Ditch to off-site habitats will be continued. Based on recommendations from DEQ, the Level II ecological risk assessment mentioned above will be performed to verify the lack of impacts to ecological receptors at the Main Drainage Ditch.

3.5 IRP Site 5 - Aerospace Ground Equipment Maintenance Shop

Liquid wastes were reportedly disposed of to the ground surface at points along two fence lines at the AGE Maintenance Shop. One area (Area A) is north of O'Conner Way, and the second (Area C) is approximately 50 feet south of Building 160 (Figure 3-11). The former location of a leaking UST is designated as Area B. The UST, Building 1225, and the northern fence line were removed in 1988. O'Conner Way separates the remainder of IRP Site 5 from the former northern fence line.

The topography at IRP Site 5 is relatively flat with a slight slope toward the north and the east. Stormwater catch basins exist near the eastern and southern site boundaries. There are storm sewer and water lines along the east side of Carl Street, and buried power lines along O'Conner Way.



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IRP SITE 5

AEROSPACE GROUND EQUIPMENT MAINTENANCE SHOP

142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-11

3.5.1 Waste Disposal History

Wastes generated at the AGE Maintenance Shop include spent battery acid, solvents, lubricants, antifreeze, cleaning solutions, and automobile fluids. Some of these wastes may have been disposed of along the northern and southern fence lines as evidenced by soil staining (HMTC 1987). The former leaking UST contained heating oil, and was excavated and removed in late 1988.

3.5.2 Nature and Extent of Contamination

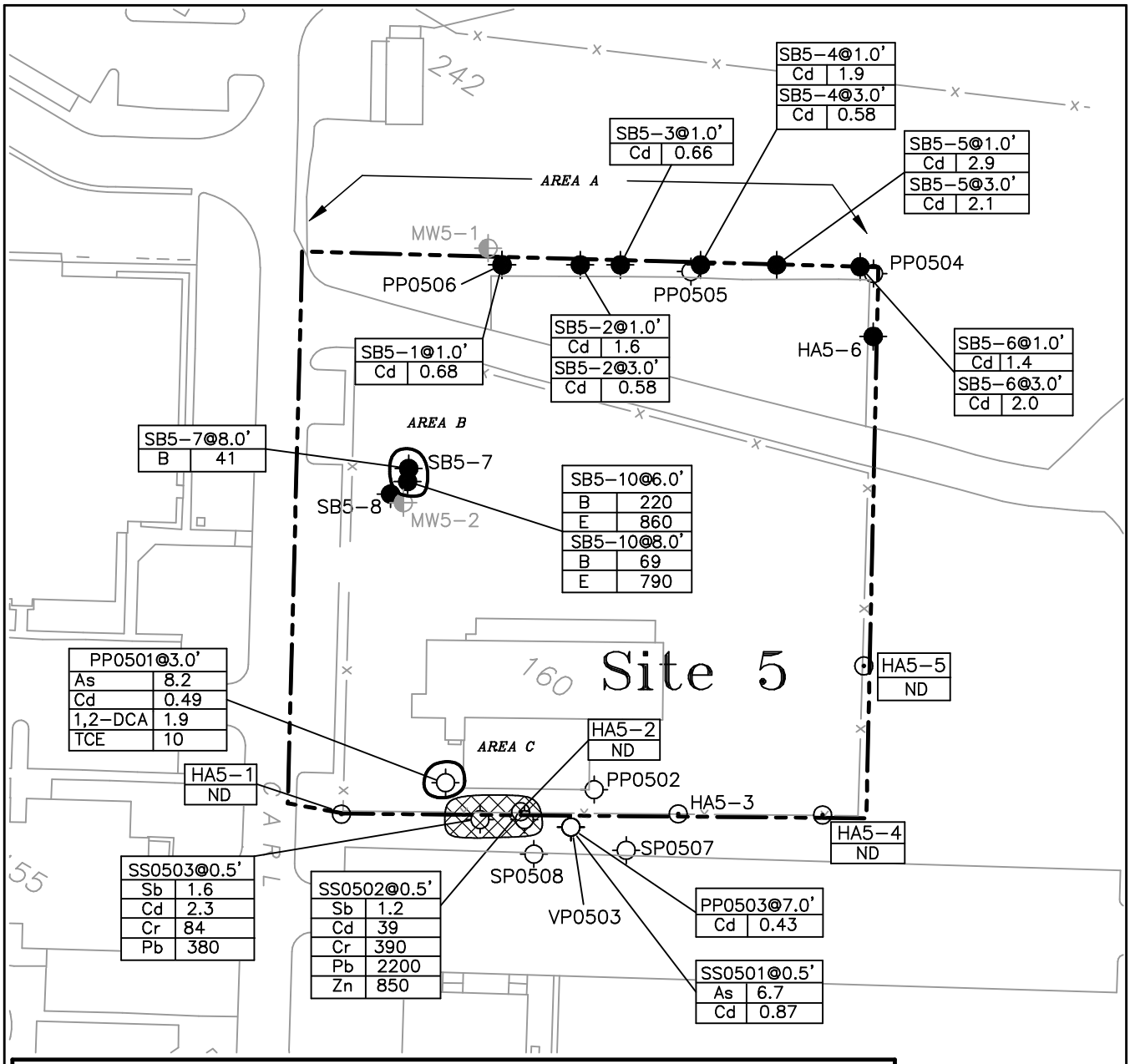
The results of the investigations conducted at Areas A and C are discussed below. Area B was not investigated as part of the IRP; this area is being addressed through the Base's UST program.

3.5.2.1 Area A, Former Northern Fence Line

The soil investigations conducted at Area A have not found conclusive evidence to indicate that wastes were discharged to the ground surface along the northern fence line. Although cadmium was detected above the PSG in ten of the twelve soil samples collected along the former fence line (Figure 3-12), the frequency of the detections suggests that the elevated cadmium levels may be associated with imported fill material or native soil conditions in the vicinity of IRP Site 5.

TCE was detected above the PSG in groundwater samples collected from monitoring well MW5-1 in December 1988 at a concentrations of 6.2 µg/l, and in April 1996 at a concentration of 2.5 µg/l. In May 1996, TCE also was detected below the PSG in direct-push groundwater sample PP0506 (located within 5 to 10 feet of monitoring well MW5-1) 1 at a concentration of 1.3 µg/l. TCE was not detected in well MW5-1 during the Phase II RI. Concentrations of chloroform; 1,2-dichlorobenzene; toluene; and xylene were each detected in samples collected from well MW5-1, at concentrations of 2.0 µg/l or less. Five reported detections of methylene chloride (0.49 to 8.5 µg/l) in IRP Site 5 groundwater samples are suspected laboratory artifacts.

The source of the VOCs detected in groundwater is uncertain, but the absence of VOCs in soil indicates that Area A is not a likely source. The VOCs and TPH as diesel detected in monitoring well MW5-1 may be related to the former leaking UST at Area B.



LEGEND

- SI Soil Boring (SAIC 1991)
- Monitoring Well, Floodplain Silt Zone
- Phase I RI Direct-Push Point (OpTech 1996)
- Phase II RI Hand Auger Boring Sample
- Extent of Surficial Soils with Apparent Metals Contamination
- Approximate Extent of VOCs Above PSGs in Soil

Abbreviations

As – Arsenic
Cd – Cadmium
Cr – Chromium
B – Benzene
E – Ethylbenzene
1,2-DCA – 1,2,-Dichloroethane
TCE – Trichloroethene
Pb – Lead
Sb – Antimony
Zn – Zinc

Concentrations in milligrams per kilogram (mg/kg)

270 Building ID

N

0 40 80

Scale in Feet

ERM

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IRP SITE 5
EXTENT OF CONTAMINATION IN SOIL
142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3-12

3.5.2.2 Area C, Southern Fence Line

The constituents 1,2-dichloroethene (1,2-DCA) and TCE were detected above respective PSGs in the soil sample collected from 3 feet bgs in boring PP0501. VOCs were not detected in the soil sample collected from 7 feet bgs in boring PP0501, nor were VOCs detected in other soil samples collected at Area C.

Antimony, arsenic, cadmium, chromium, lead, and/or zinc were detected above respective PSGs in three surface soil samples and two subsurface soil samples collected at Area C during the Phase I RI. As discussed above, the frequency of cadmium detections above the PSG at IRP Site 5 suggests that the elevated cadmium levels may be associated with imported fill or native soil conditions in the area. Additionally, although arsenic was detected above the PSG in one surface soil sample and one subsurface soil sample, these detections were not associated with elevated concentrations of other metals. This suggests that the elevated arsenic levels may also be naturally-occurring.

The concentrations of antimony, cadmium, chromium, and lead in surface soil samples SS0502 and SS0503, and zinc in sample SS0502, are higher than area background concentrations of these metals, and may be indicative of local surface soil contamination. The lateral extent of the apparent contamination is shown on Figure 3-12. The absence of metals detected above respective PSGs in the soil sample collected from 1.5 feet bgs in boring HA5-2 indicates that the vertical extent of contamination is limited to approximately the upper 1 foot of soil.

3.5.3 Risk Assessment Results

The results of the risk characterization for IRP Site 5 indicate the following:

- Both the estimated carcinogenic risks and the noncarcinogenic hazards are acceptable for Base workers, construction workers, reservists, hypothetical on-site residents, and by extension, off-site residents, under USEPA and ODEQ guidelines.

- With one exception, reported lead concentrations in soil were below the USEPA screening level of 400 mg/kg for an unrestricted-use scenario. An isolated detection of lead at 2,200 mg/kg exceeded this screening level, as well as the 750 mg/kg industrial-use screening

level. Analytical results for adjacent soil samples confirm that this is an isolated detection.

3.5.4 Recommendation

Because Area A has had only sporadic detections of VOCs in groundwater, and the frequent detections of cadmium in soil likely are associated with background soil conditions, no further action is recommended for this location.

The risks associated with groundwater at IRP Site 5 have been determined to be acceptable for all anticipated land and water use scenarios. It is therefore recommended that no further action be performed related to groundwater.

3.6 IRP Site 6 – Washrack West of Building 1355

The PA report recommended no further action at IRP Site 6 based on the results of the Phase I Records Search (HMTC 1987). IRP Site 6 was subsequently redesignated as IRP Site 11 during the SI (OpTech 1996) after TPH and metals were detected in soil samples collected by Base personnel during the installation of underground utilities near the washrack. IRP Site 11 is discussed in Section 3.11.

3.7 IRP Site 7 - Burn Pit Area

The former Burn Pit Area is situated southeast of Building 210 and for the most part, is located outside of the Portland ANGB boundary. The majority of IRP Site 7 lies on Port of Portland property.

3.7.1 Waste Disposal History

The burn pit was used for fire training exercises between 1957 and 1979. Several thousand gallons of flammable liquids, including waste oil, JP-4 jet fuel, and solvents, reportedly were burned each year in the pit (HMTC 1987). The former burn pit area has been filled with gravel and compacted.

3.7.2 Nature and Extent of Contamination

The results of soil gas and soil sampling conducted at IRP Site 7 indicate that petroleum-related VOCs including benzene, toluene, ethylbenzene, and xylenes (BTEX) are present above respective PSGs in the area of the former burn pit (Figure 3-13). Acetone was detected at concentrations ranging from 15 to 980 micrograms per kilogram in several Phase II RI soil samples. SVOCs and TPH as gasoline and diesel were also detected above PSGs in the area of the former burn pit (Figure 3-13). The lateral extent of soil contamination above PSGs is limited to the former burn pit area. Constituents detected above PSGs in shallow groundwater include benzene in direct-push samples PP0701 and GP7-10SZ, at concentrations of 1.7 µg/l and 2.97 µg/l, respectively, and PCE in a sample collected from monitoring well MW7-4 at a concentration of 2.0 µg/l in 1997. Additionally, TPH as diesel was detected in monitoring wells MW7-1 and MW7-3, and in three direct-push samples collected at the center and perimeter of the former burn pit. The cumulative analytical testing results for IRP Site 7 show that the constituents detected above PSGs are isolated detections rather than indicators of persistent groundwater contamination.

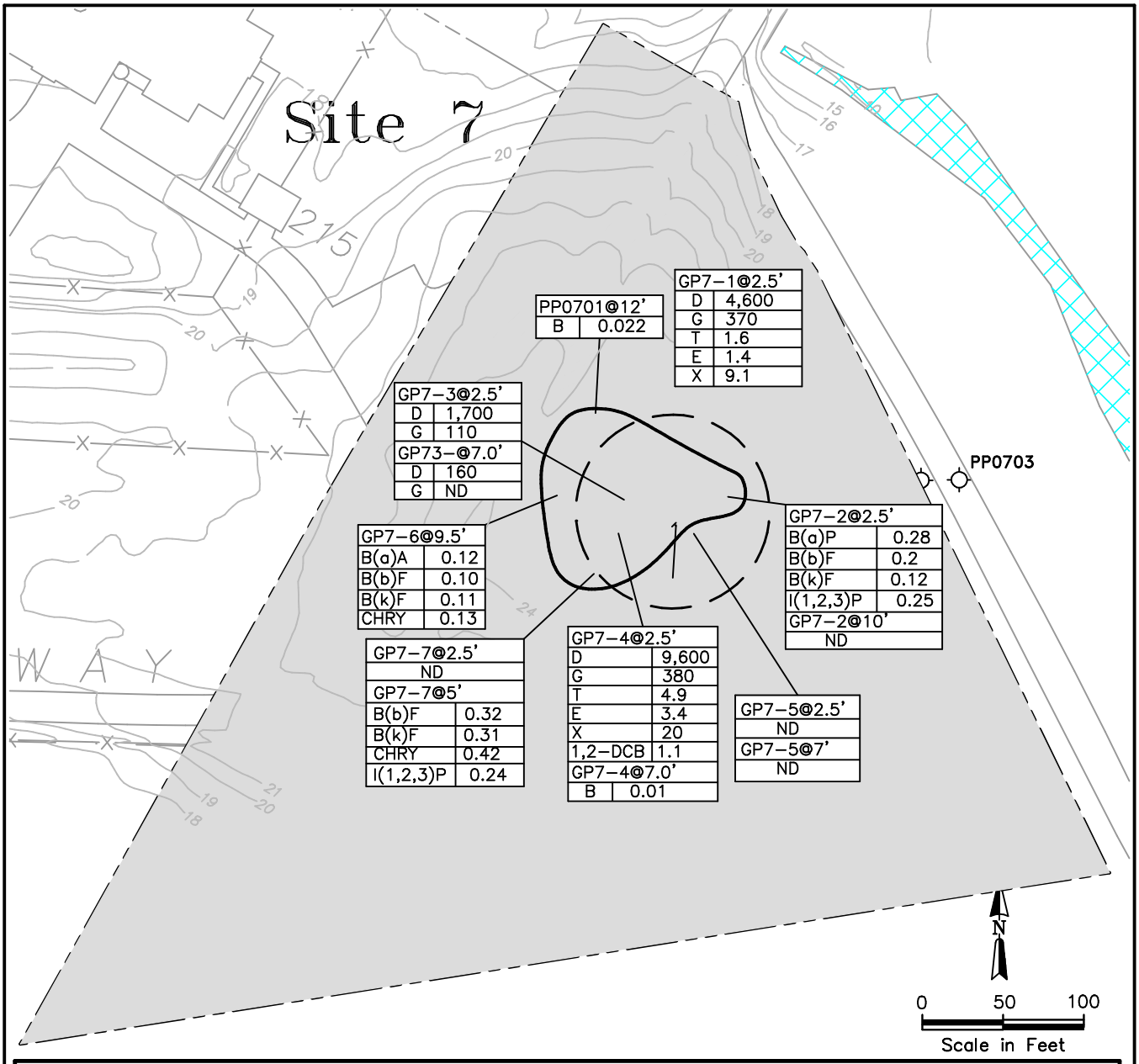
3.7.3 Risk Assessment Results

The results of the risk characterization for IRP Site 7 indicate the following:

- Both the estimated carcinogenic risks and the noncarcinogenic hazards are acceptable for Base workers, construction workers, reservists, hypothetical on-site residents, and by extension, off-site residents, under USEPA and ODEQ guidelines.

- Reported lead concentrations in soil were below the USEPA screening level for an unrestricted use scenario; thus lead in soil is not expected to pose an unacceptable risk.

Several groundwater samples in which PAHs were not detected were analyzed using detection limits greater than risk-based action levels, which may have underestimated associated risk. To verify the lack of risk associated with PAHs in groundwater at IRP Site 7, one round of groundwater samples will be collected and analyzed for PAHs using USEPA Method 8270-Selective Ion Monitoring (SIM) which will provide lower detection limits. This sampling is expected to occur during the second half of year 2001.



LEGEND

- Monitoring Well, Shallow Zone
- Monitoring Well, Floodplain Silt Zone
- Monitoring Well, Columbia River Sand Aquifer
- Phase II RI Direct–Push Point
- Phase I RI Direct–Push Point (OpTech 1996)
- IRP Site Boundary
- 270 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)
- Approximate Limit of Former Burn Pit
- Approximate Extent of Organic Compounds Above PSGs in Soil

ABBREVIATIONS

D – Diesel
G – Gasoline
B – Benzene
T – Toluene
E – Ethylbenzene
X – Xylenes
ND – Not Detected
B(a)A – Benzo(a)Anthracene
B(a)P – Benzo(a)Pyrene
B(b)F – Benzo(b)Fluoranthene
B(k)F – Benzo(k)Fluoranthene
CHRY – Chrysene
I(1,2,3–CD)P – Indeno(1,2,3–CD)Pyrene
DCB – Dichlorobenzene

Concentrations in milligram per kilogram (mg/kg)

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IRP SITE 7
EXTENT OF CONTAMINATION IN SOIL
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FIGURE 3–13

3.7.4 Recommendation

The constituents detected in groundwater at IRP Site 7 are isolated detections and do not indicate persistent groundwater contamination. The risk associated with these groundwater detections is acceptable based on all anticipated land and water use scenarios. It is recommended that no further remedial action be performed related to groundwater. It is also recommended that one round of groundwater samples be collected at IRP Site 7 and analyzed for PAHs using EPA Method 8270-SIM, as described in Section 3.7.3 above.

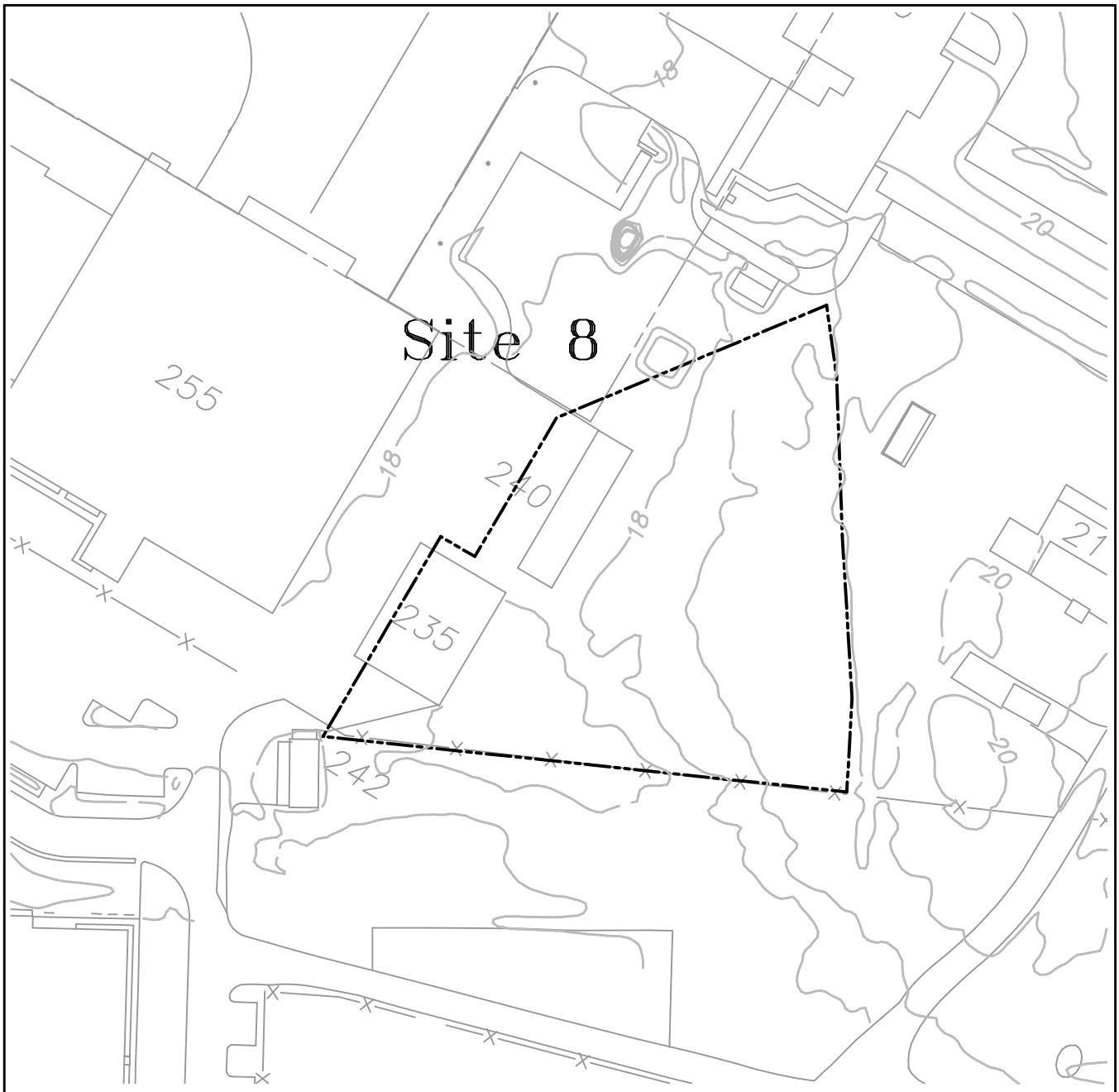
VOCs, SVOCs, and TPH as gasoline and diesel have been detected at concentrations greater than respective PSGs in soil samples collected from the area of the former burn pit. The soil contamination is limited to the area immediately surrounding the burn pit. The risks associated with soil at IRP Site 7 are acceptable based on an industrial land-use scenario. The use of this area is not expected to change in the future (City of Portland Bureau of Planning 2000a, 2000b). It is therefore recommended that no further action be performed related to soil.

3.8 IRP Site 8 - Sanitary Landfill

The former Sanitary Landfill is east of Building 255, and encompasses most of Building 235 and all of Building 240 (Figure 3-14). Reportedly, limited information is available to identify the exact location of past disposal activities at the Sanitary Landfill (HMTC 1987).

3.8.1 Waste Disposal History

The Sanitary Landfill was active between 1949 and 1956 and occupied an area of approximately 1 acre. Wastes were reportedly disposed of in trenches 6 to 8 feet deep, 60 to 70 feet long, 10 feet wide, and spaced 5 to 20 feet apart. Filled trenches were covered with 3 to 4 feet of excavated materials. The Sanitary Landfill received wastes generated by the Portland ANGB and the Army National Guard. The wastes consisted of ordinary shop and building refuse, paint cans, oil and paint residue, batteries, and broken equipment and parts (OpTech 1996).



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IRP SITE 8
SANITARY LANDFILL

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FIGURE 3-14

3.8.2 Nature and Extent of Contamination

Three trenches were excavated through IRP Site 8 for underground utility construction following the SI. No evidence of landfilling was encountered. Evidence of landfilling also was not confirmed by an aerial photograph review performed during the SI.

Three direct-push groundwater samples were collected during the Phase I RI in an area downgradient of the subsurface anomalies identified by a ground-penetrating radar survey. These samples were analyzed for VOCs, SVOCs, PCBs, and metals. PCBs were not detected, and there were no confirmed detections of VOCs, SVOCs, or metals above applicable or relevant and appropriate requirements (ARARs). Reported detections of methylene chloride and bis(2-ethylhexyl)phthalate, both below 10 µg/l in one sample, are suspected laboratory artifacts.

Since landfilling activities were not confirmed and the Phase I RI sampling results indicated no adverse impacts to groundwater, IRP Site 8 was not investigated further.

3.8.3 Risk Assessment Results

The results of the risk characterization for IRP Site 8 indicate the following:

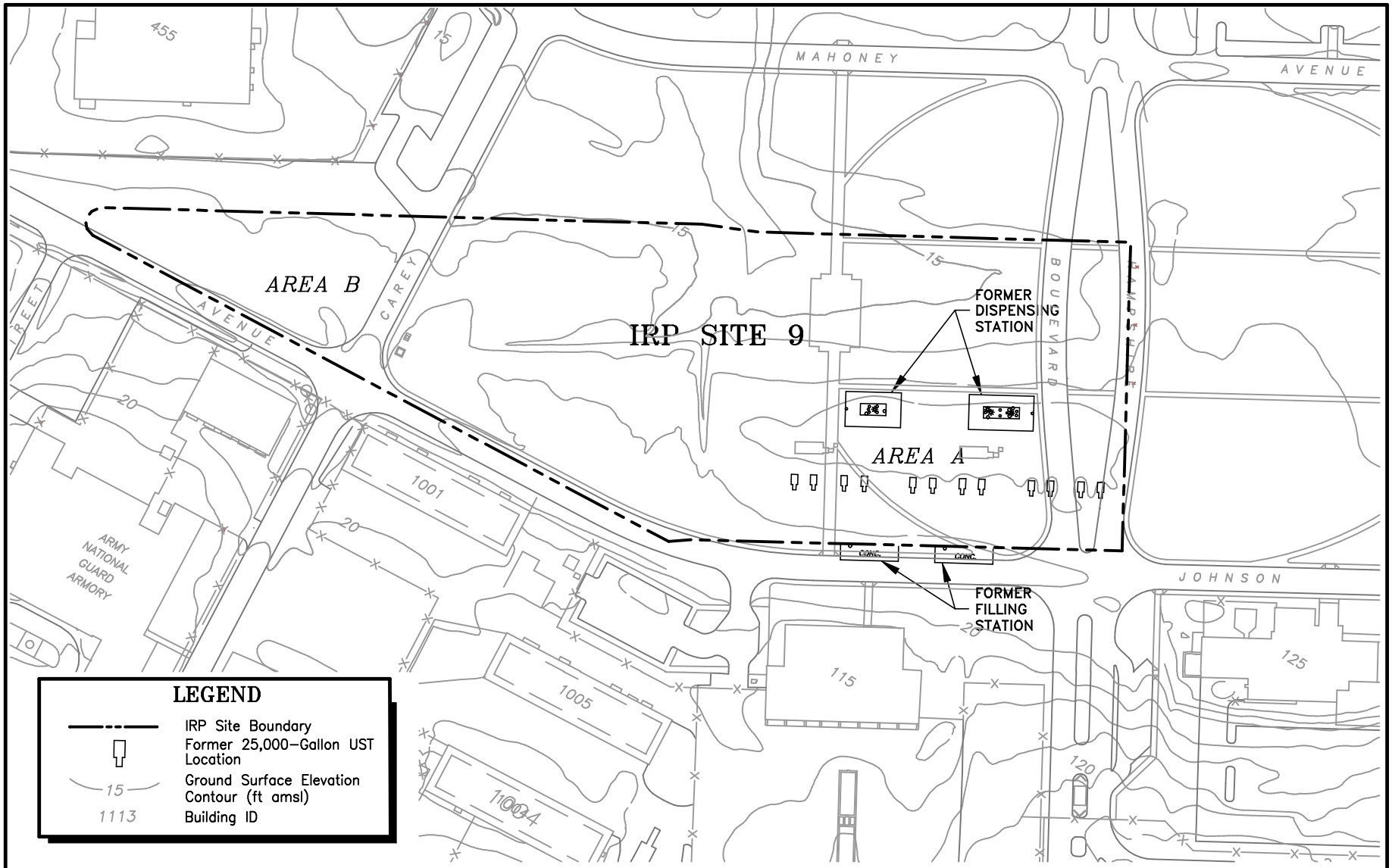
- No carcinogenic COCs were identified. The estimated non-carcinogenic hazards are acceptable for Base workers, construction workers, reservists, hypothetical on-site residents, and by extension, off-site residents, under USEPA and ODEQ guidelines.

3.8.4 Recommendation

No further action is recommended for IRP Site 8 due to the lack of confirmed detections of constituents above PSGs.

3.9 IRP Site 9 - Petroleum, Oil, and Lubricants Facility

The former POL Facility is northwest of the intersection of Hampshire Boulevard and Johnson Avenue (Figure 3-15). Area A comprises the former main POL Facility, and two former fuel dispensing stations. Area B is the former diesel storage and dispensing area. Area A contained twelve 25,000-gallon USTs and one waste oil UST, which were all removed in



IRP SITE 9
FORMER PETROLEUM, OIL, AND LUBRICANTS STORAGE AREA
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PORTLAND, OREGON

FIGURE 3-15

March 1994. The scope and results of the UST removals are not well documented. Two aboveground storage tanks were also located at Area B (HMTC 1987).

The 25,000-gallon USTs at Area A were used to store JP-4 jet fuel. Refueler trucks were used to transfer fuel from IRP Site 9 to the flight apron area. Inventories and tightness test results did not indicate leaks in any of the tanks or associated piping.

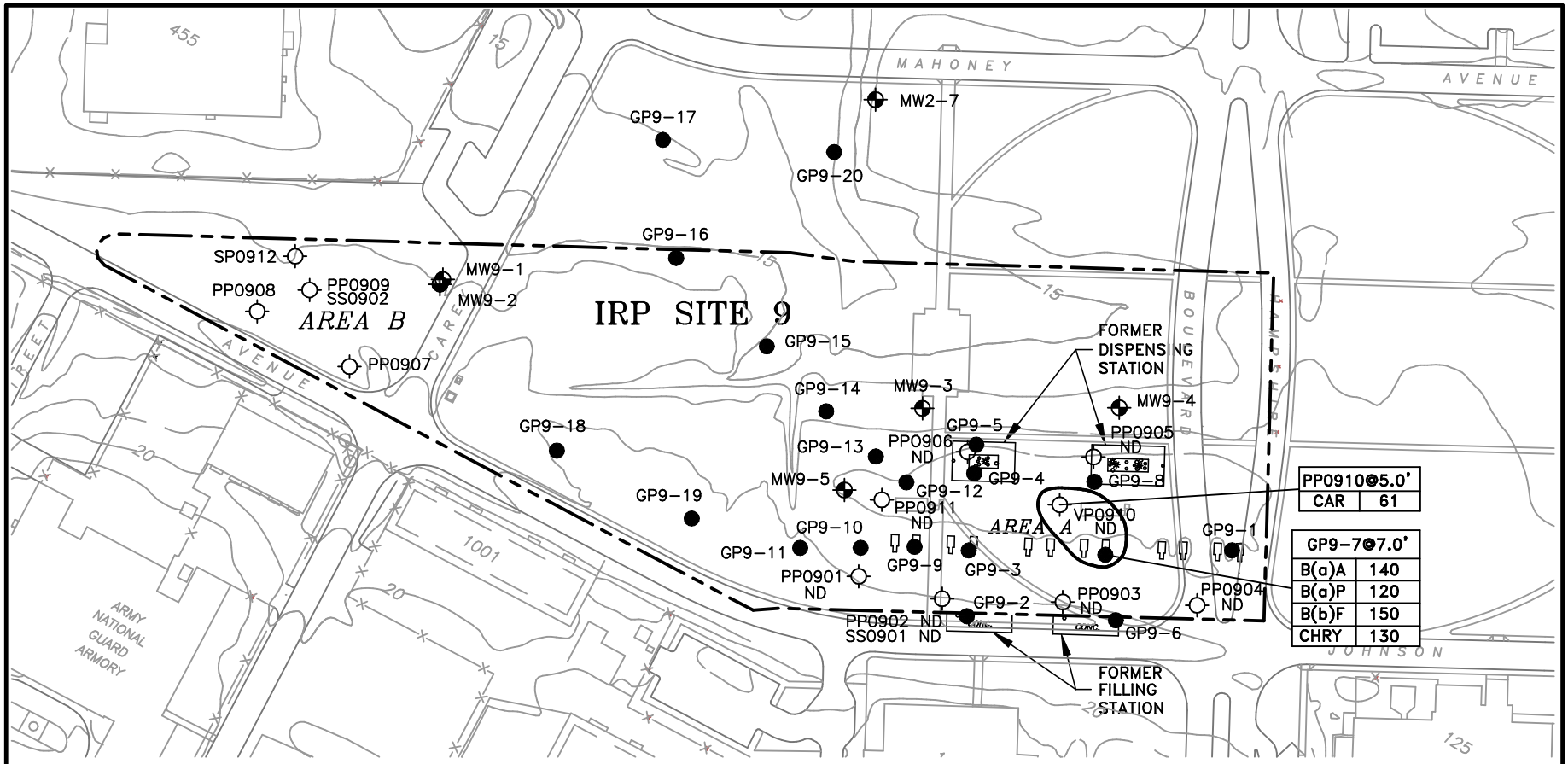
3.9.1 Waste Disposal History

No waste disposal or storage activities are reported for IRP Site 9. During site construction activities in 1991, ANG personnel discovered TPH contamination in soils at Area A.

3.9.2 Nature and Extent of Contamination

TPH as gasoline and diesel were detected below respective PSGs in soil samples collected from Area A, as well as in samples collected from the area between Areas A and B (Figure 3-16). Groundwater samples collected at Area A were found to contain TPH as gasoline, diesel, and heavy oil; benzene, ethylbenzene, and xylenes; and petroleum-related polynuclear aromatic hydrocarbons (PAHs). Scattered detections of chlorinated VOCs also were observed in several direct-push groundwater samples collected at IRP Site 9. The benzene, ethylbenzene, and PAH concentrations in several groundwater samples exceeded respective PSGs. The distribution of TPH and BTEX in groundwater at IRP Site 9 is depicted on Figure 3-17. The extent of dissolved petroleum compounds in groundwater generally corresponds to the area of the highest TPH concentrations detected in soil. This correlation suggests that residual soil contamination in the vicinity of the former USTs may act as a continuing source of groundwater contamination. The PAHs are likely associated with the dissolved TPH, as there are no other known sources of these compounds at IRP Site 9.

Evidence of light non-aqueous phase liquid was not observed during the investigations at IRP Site 9. Although all of the groundwater monitoring wells are screened below the water table, the concentrations of TPH and BTEX detected in soil and groundwater at IRP Site 9 are significantly less than the concentrations typically observed at non-aqueous phase liquid sites.



LEGEND

- Monitoring Well, Shallow Zone
- Monitoring Well, Deep Zone
- Direct-Push Point
- Phase I RI Direct-Push Point (OpTech 1996)
- Approximate Extent of SVOCs in Soil
- Units are micrograms per kilogram

Abbreviations
B(a)A – Benzo(a)anthracene
B(a)P – Benzo(a)pyrene
B(b)F – Benzo(b)fluoranthene
CAR – Carbazole
CHRY – Chrysene
ND – No Detections Above PSGs

- IRP Site Boundary
- Former 25,000-Gallon UST Location
- 15 — Ground Surface Elevation Contour (ft amsl)
- 1113 — Building ID

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IRP SITE 9

EXTENT OF CONTAMINATION IN SOIL

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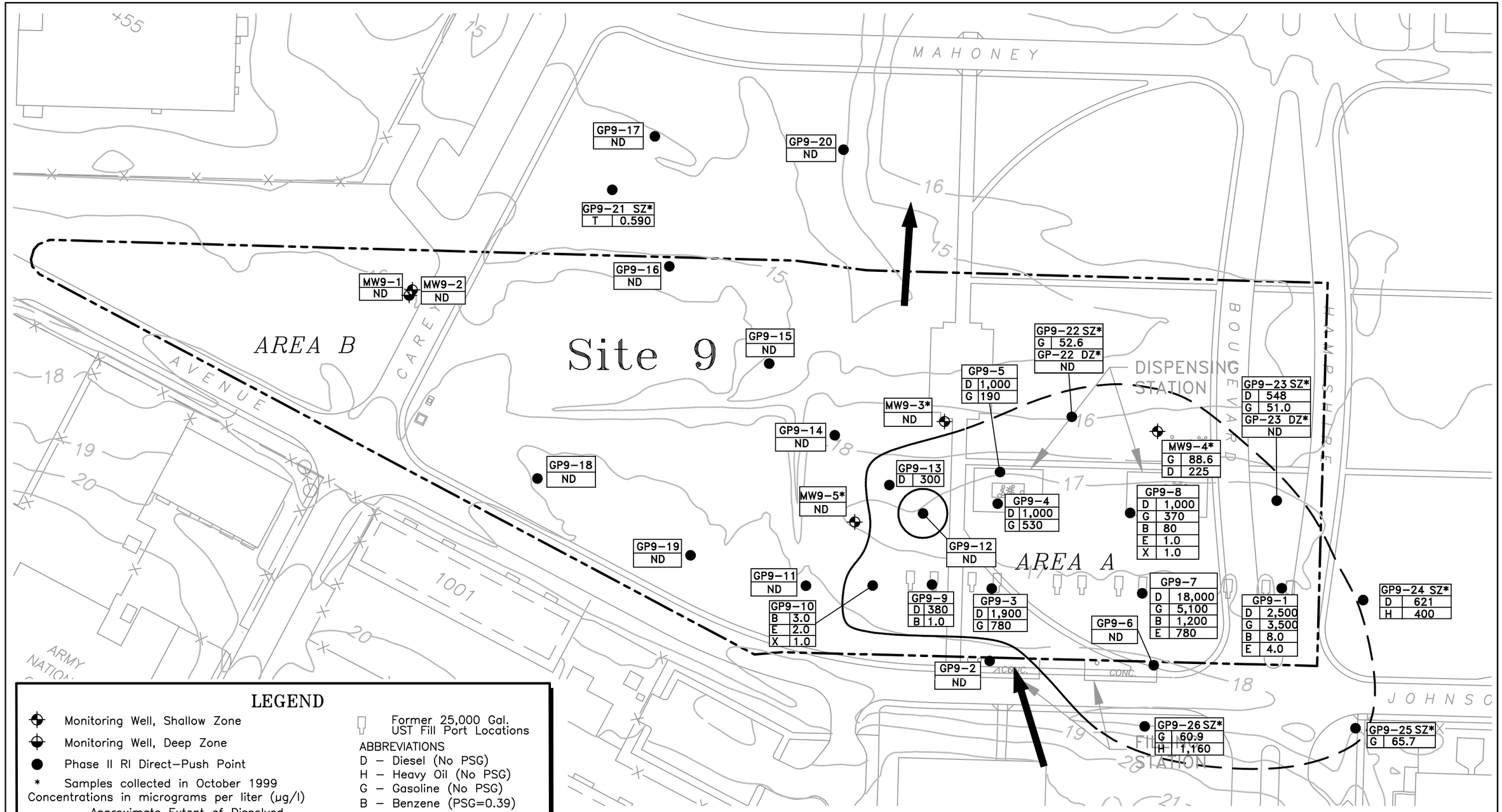
FIGURE 3-16



LEGEND

- Monitoring Well, Shallow Zone
- Monitoring Well, Deep Zone
- Phase II RI Direct–Push Point
- * Samples collected in October 1999
  Concentrations in micrograms per liter (µg/l)
- Approximate Extent of Dissolved TPH/BTEX in Groundwater; Dashed Where Inferred
- Shallow Zone Groundwater Flow Direction – October 1999
- IRP Site Boundary
- 270 Building ID
- Former 25,000 Gal. UST Fill Port Locations

ABBREVIATIONS

D – Diesel (No PSG)
H – Heavy Oil (No PSG)
G – Gasoline (No PSG)
B – Benzene (PSG=0.39)
E – Ethylbenzene (PSG=700)
T – Toluene (PSG=720)
X – Xylene (PSG=1,400)
ND – Not Detected
SZ – Shallow Zone
DZ – Deep Zone

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IRP SITE 9

TPH AND BTEX CONCENTRATIONS DETECTED IN GROUNDWATER
FEBRUARY/MARCH 1998 AND OCTOBER 1999

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PORTLAND, OREGON

FIGURE 3–17

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Sporadic detections of TCE; cis-1,2-DCE; and VC were observed in several groundwater samples. These compounds were not detected in any of the soil samples, and there are no known sources of chlorinated VOCs at IRP Site 9.

Buried utilities are present at IRP Site 9. These utilities may provide a preferential pathway for VOC vapors to travel a small distance away from the source of those vapors. If deep enough, the utility channels may also allow groundwater to flow a short distance away from the general flow path. However, utilities would need to be buried within the Shallow Zone (below approximately 12 feet bgs) to have any effect on groundwater or contaminant flow direction. Remedial action at this site will require consideration of the presence of buried utilities.

3.9.3 Risk Assessment Results

The results of the risk characterization for IRP Site 9 indicate the following:

- Both the estimated carcinogenic risks and the noncarcinogenic hazards are acceptable for Base workers, construction workers, and reservists under USEPA and ODEQ guidelines.

- The total estimated carcinogenic risk for hypothetical on-site residents exceeds USEPA and ODEQ acceptable levels, primarily as a result of assumed exposures to benzene and PAHs in groundwater under this scenario. Additionally, the carcinogenic risk associated with benzo(a)pyrene in soil under the on-site residential scenario exceeds the ODEQ benchmark for acceptable risk associated with an individual constituent. The noncarcinogenic hazard for hypothetical on-site residents also exceeds both USEPA and ODEQ guidelines, primarily as a result of benzene in groundwater. By extension of the results for the on-site residential scenario, the potential future risks to off-site residents related to the possible off-site migration and residential use of contaminated groundwater also exceed USEPA and ODEQ criteria.

Reported lead concentrations in soil were below the USEPA screening level for an unrestricted-use scenario; thus lead in soil is not expected to pose an unacceptable risk.

3.9.4 Recommendation

SVOCs have been detected at concentrations greater than PSGs in soil samples collected at IRP Site 9. However, the risks associated with soil at IRP Site 9 are acceptable based on an industrial land-use scenario. The industrial land use of this area is not expected to change in the future (City of Portland Bureau of Planning 2000a, 2000b). It is therefore recommended that no further action be performed related to soil.

It is recommended that remedial alternatives be developed that address TPH and BTEX compounds remaining in IRP Site 9 groundwater. The development of these alternatives is discussed in Sections 4.0 and 5.0.

3.10 IRP Site 10 - Equipment Washrack

The Equipment Washrack is at the southeast corner of Building 1001 (Figure 3-18). The washrack consists of an irregularly shaped concrete pad, approximately 45 feet long by 30 feet wide; a catch basin; and a drain pipe.

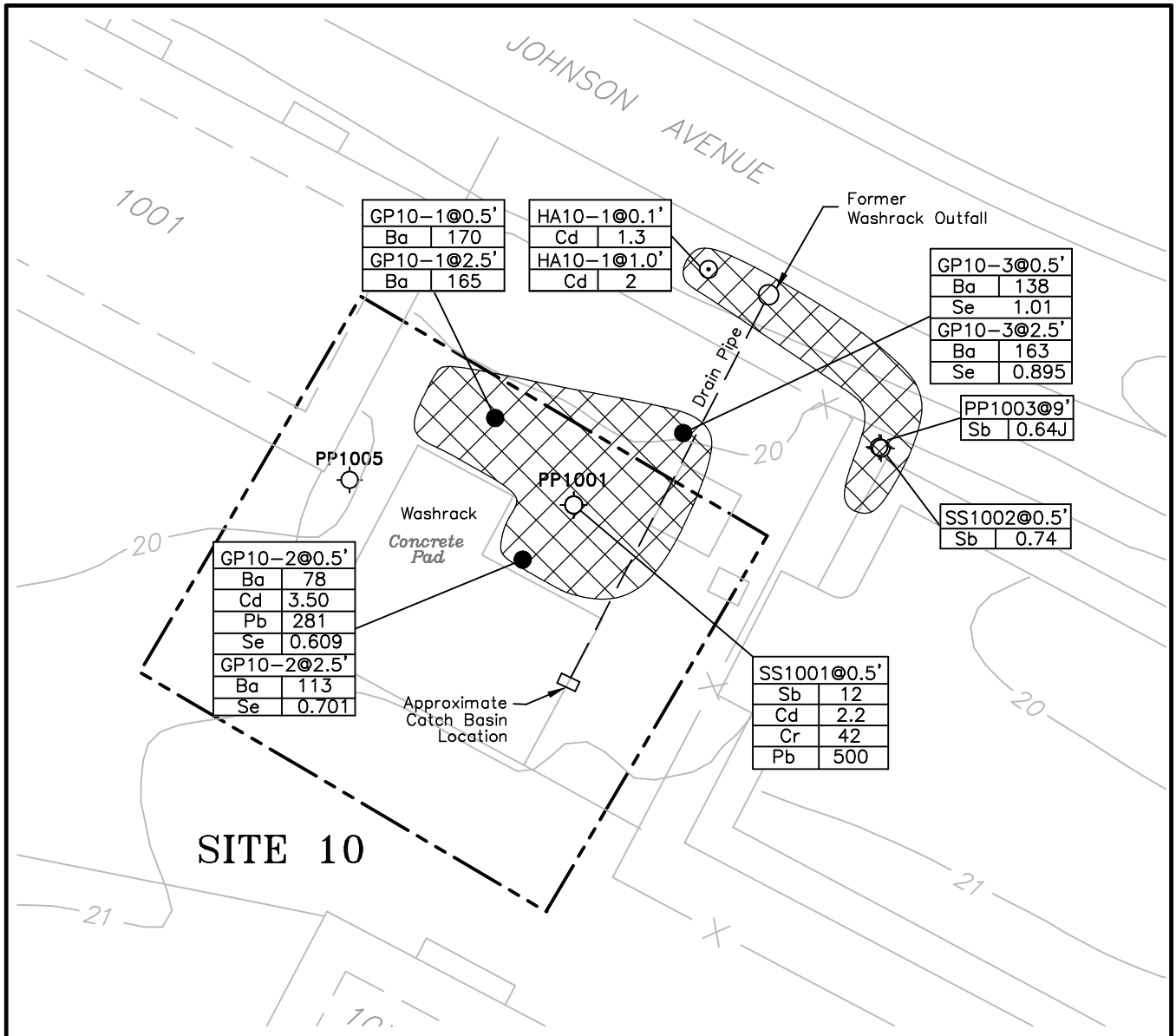
3.10.1 Waste Disposal History

The washrack was installed in 1950 and used until 1993. The concrete pad slopes toward the east to a catch basin that collected wash fluids from equipment and vehicle-cleaning activities. The wash fluids discharged via the drain pipe to a roadside ditch along Johnson Avenue, northeast of the washrack area.

3.10.2 Nature and Extent of Contamination

TPH was detected below PSGs in two surface soil samples collected from the former drainage ditch north of Site 10 during the RI. The presence of petroleum compounds detected above PSGs in soil in 1993 was not confirmed by the RI sampling, suggesting that the elevated concentrations are very limited in extent and/or have attenuated.

As shown on Figure 3-18, antimony, cadmium, lead, and/or selenium were detected above respective PSGs in soil samples collected from five locations. The concentrations of antimony detected in surface soil sample SS1002 and in the subsurface sample collected from boring PP1003 (0.74 and 0.64 mg/kg, respectively) are not significantly higher than the



LEGEND

- Phase I RI Direct–Push Point (OpTech 1996)
- Phase II RI Hand Auger Boring
- Phase II RI Direct–Push Point

ABBREVIATIONS

Sb – Antimony Cr – Chromium
Cd – Cadmium Pb – Lead
Ba – Barium Se – Selenium
J – Estimated Concentration

- Approximate Extent of Soil With Elevated Metal Concentrations
- Concentrations are in mg/kg
- 1001 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)
- IRP Site Boundary

N

0 15 30
Scale in Feet

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IRP SITE 10

EXTENT OF CONTAMINATION IN SOIL

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FIGURE 3–18

Portland ANGB background level of 0.59 mg/kg; these antimony detections likely reflect background conditions.

A site-specific background value for selenium is not available for comparison with the RI soil sampling results. However, the selenium results also appear to reflect background conditions, as indicated by the consistent selenium concentrations in the RI samples, and the absence of cadmium and lead concentrations above respective PSGs in the majority of samples with selenium detections above PSGs.

Concentrations of antimony, cadmium, and lead detected in surface soil sample SS1001 are elevated relative to Portland ANGB background levels.

Similarly, cadmium concentrations in the samples collected from boring HA10-1, and cadmium and lead concentrations detected in the sample collected from 0.5 feet bgs in boring GP10-2, appear to be elevated relative to background. These elevated metal concentrations may be related to past equipment and vehicle washing activities at IRP Site 10. The elevated metal concentrations at these locations are limited to the uppermost 1 to 2.5 feet of soil.

The results of direct-push groundwater sampling indicate that groundwater quality at IRP Site 10 has not been adversely impacted by past site activities.

3.10.3 Risk Assessment Results

The results of the risk characterization for IRP Site 10 indicate the following:

- Both the estimated carcinogenic risks and the noncarcinogenic hazards are acceptable for Base workers, construction workers, reservists, hypothetical on-site residents, and by extension, off-site residents, under USEPA and ODEQ guidelines.

- With one exception, reported lead concentrations in soil were below the USEPA screening level of 400 mg/kg for an unrestricted-use scenario. Lead was detected in one sample at a concentration of 500 mg/kg, which is below the USEPA screening level of 750 mg/kg for an industrial-use scenario.

3.10.4 Recommendation

The results of the RI indicate that groundwater quality at IRP Site 10 has not been adversely impacted by past site activities. Therefore, it is recommended that no further action be performed related to groundwater.

Metals have been detected at concentrations greater than respective PSGs in soil samples collected at IRP Site 10. However, the risks associated with soil are acceptable based on an industrial land-use scenario. It is not expected that the use of this area will change in the future. It is therefore recommended that no further action be performed related to soil.

3.11 IRP Site 11 - Washrack West of Building 250

The former Washrack West of Building 250 is at the southeast corner of Apron A, adjacent to Building 250 (Figure 3-19), and was used to wash aircraft. The washrack facility consisted of a 60-foot by 80-foot pad, and an oil/water separator. The concrete pad sloped toward the east, where surface runoff from the pad drained to the oil/water separator. Solvents and degreasers were sometimes applied to the aircraft before washing them with a soap and water mixture. The washrack and oil/water separator were removed in September 1999 as part of a soil removal action (ERM 2000b). Contaminated soil was hauled off-site and treated by thermal desorption.

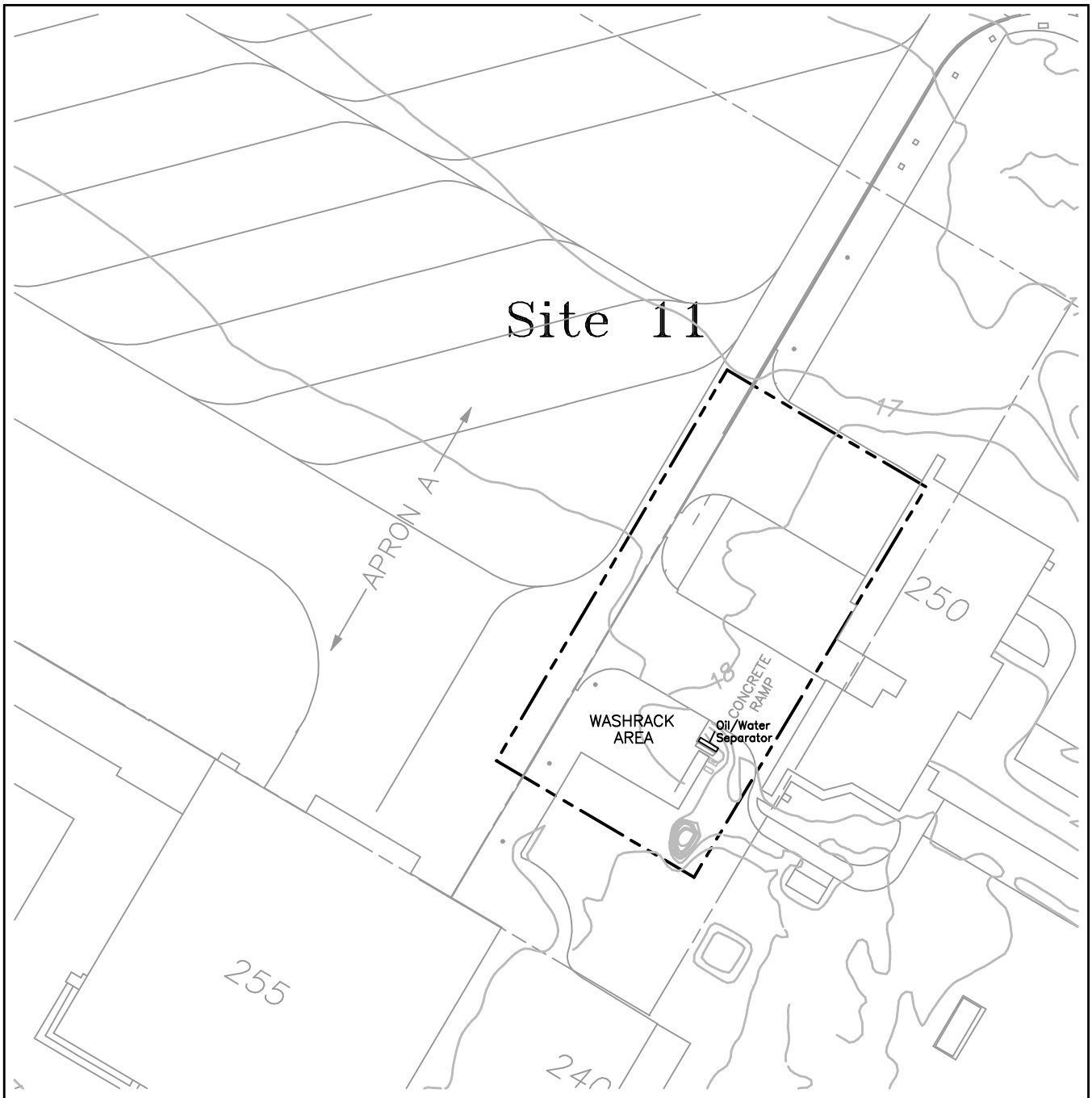
3.11.1 Waste Disposal History

Liquids from aircraft washing operations flowed from the washrack area to the catch basin of the oil/water separator. The oil/water separator discharged into the storm sewer prior to 1984, and into the sanitary sewer after 1984.

The oil/water separator was a three-stage, concrete, gravity-type separator, which was removed from service in 1989 after cracks were discovered in the center stage.

3.11.2 Nature and Extent of Contamination

Contaminants detected in soil and groundwater at IRP Site 11 include chlorinated VOCs, BTEX, TPH, and metals. The lateral extent of VOCs and TPH in soil prior to the 1999 removal action was generally limited to



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IRP SITE 11
WASHRACK WEST OF BUILDING 250

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PORTLAND, OREGON

FIGURE 3-19

within 25 feet of the oil/water separator. Figure 3-20 shows the extent of organic contaminants remaining in soil after the 1999 removal action; VOCs and TPH are still present above respective PSGs in soil near the water table.

VOCs and petroleum hydrocarbons have impacted groundwater in the Shallow Zone and Deep Zone at IRP Site 11. The extent of chlorinated VOCs in groundwater is shown on Figure 3-21. VOCs have migrated primarily toward the northwest from the area of the former separator, and have also dispersed radially. The concentrations of chlorinated VOCs have fluctuated since regular groundwater monitoring began in 1997. The fluctuating concentrations most likely reflect seasonal changes in groundwater levels and flow directions.

Deep Zone wells/piezometers in the vicinity of Site 11 include EW11-1, PZ11-1, PZ11-3, MW11-2, MW11-8, and MW11-12. Benzene; toluene; 1,2-DCA; cis-1,2-DCE; and VC were detected above respective PSGs in groundwater samples collected from well MW11-2. Additionally, VC was detected above the PSG in piezometer PZ11-3, and cis-1,2-DCE was detected below the PSG in well MW11-12. These detections indicate that dissolved VOCs have migrated to the Deep Zone northwest and southeast of the former oil/water separator. Figure 3-22 shows the vertical distribution of total chlorinated hydrocarbons at IRP Site 11.

CRSA wells/piezometers in the vicinity of IRP Site 11 include EW11-2, PZ11-2, PZ11-4, PZ11-5, and MWBG-11. There have been no confirmed detections of contaminants in these wells/piezometers.

During the Phase II RI, two direct-push groundwater samples (GP11-5 and GP11-6) were collected from the bottom of the Shallow Zone to assess the potential presence of dense non-aqueous phase liquid (DNAPL) in the immediate vicinity of the oil/water separator. Although dissolved VOCs were detected in these groundwater samples, the concentrations were not indicative of DNAPL; the maximum VOC concentration detected was 63 µg/l (VC). Concentrations on the order of 10,000 µg/l indicate the possible presence of DNAPL (Pankow and Cherry 1996).

3.11.3 Risk Assessment Results

The results of the risk characterization for IRP Site 11 indicate the

Site 11

CS3-090199-6.0'	
G	1,690
D	743
B	18.3J
CB	605
1,4-DCB	469

GP11-6@3.0'	
D	160
GP11-6@5.0'	
CIS-1,2-DCE	130
PCE	70
T	1,000
GP11-6@7.0'	
CIS-1,2-DCE	180
E	3,200
T	3,700
X	22,000
G	1,300
D	420

CS1-083199-2.0'	
MC	40.7

CS9-090399-6.0'	
G	322
D	698
B	21.1J
CB	582
1,4-DCB	431

CS14-090399-4.0'	
G	694
D	641
B	39.7J
CB	519
1,4-DCB	358
CIS-1,2-DCE	1080
VC	1010

CS4-090199-6.0'	
G	1,910
D	532
B	56.6J
CB	776
1,4-DCB	498

CS2-090199-6'	
G	535
D	444
1,4-DCB	174
CIS-1,2-DCE	230
VC	104

GP11-5@6.0'	
D	250

GP11-10@5.0'	
B	4.0
D	180

CS8-090199-3.5'	
B	2.07J
MC	19.0J
VC	7.77

CS13-090399-3.0'	
G	1,250
D	2,430
B	28.5J
CB	1430
1,4-DCB	1060

CS12-090399-7.5'	
G	1,570
D	2,640
B	37.7J
E	26,900
X	20,730
CB	1,180
1,4-DCB	612
VC	109

CS7-090199-3.5'	
B	1.40J
VC	7.66

GP11-3@5.5'	
G	600
D	580

GP11-12@2.0'	
VC	5.0
B	2.0
GP11-12@5.0'	
VC	5.0
B	2.0

CS16-090399-7.5'	
G	836
D	217
CB	311
1,4-DCB	163

CS15-090399-7.5'	
G	1,500
D	2,900
B	119
X	32,500
1,2-DCB	1,110
1,4-DCB	467
CIS-1,2-DCE	410
VC	72.4J

GP11-19 ND
GP11-16 ND
GP11-4 ND
GP11-22 ND
GP11-11 ND
GP11-23 ND
GP11-20 ND
GP11-13 ND
GP11-18 ND
GP11-15 ND
GP11-9 ND
GP11-17 ND
GP11-2 ND
GP11-1 ND
GP11-14 ND
GP11-24 ND

Concrete Driveway

Former Concrete Washrack Area

Former Oil Water Separator

LEGEND

- PHASE II RI DIRECT-PUSH POINT
- EXCAVATION CONFIRMATION SAMPLE LOCATION
- APPROXIMATE EXTENT OF TPH AND VOCs ABOVE PSGs IN SOIL
- EXCAVATION LIMITS, SEPTEMBER 1999
- GRASS
- SITE 11 BOUNDARY

ABBREVIATIONS
B – Benzene
D – TPH-Diesel (mg/kg)
G – TPH-Gasoline (mg/kg)
CIS-1,2-DCE – Cis-1,2-Dichloroethene
PCE – Tetrachloroethene
T – Toluene
E – Ethylbenzene
X – Xylene
VC – Vinyl Chloride
CB – Chlorobenzene
1,2-DCB – 1,2-Dichlorobenzene
1,4-DCB – 1,4-Dichlorobenzene
MC – Methylene Chloride
All units are µg/kg unless otherwise noted

N

0 15 30
Scale in Feet

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IRP SITE 11
EXTENT OF CONTAMINATION IN SOIL

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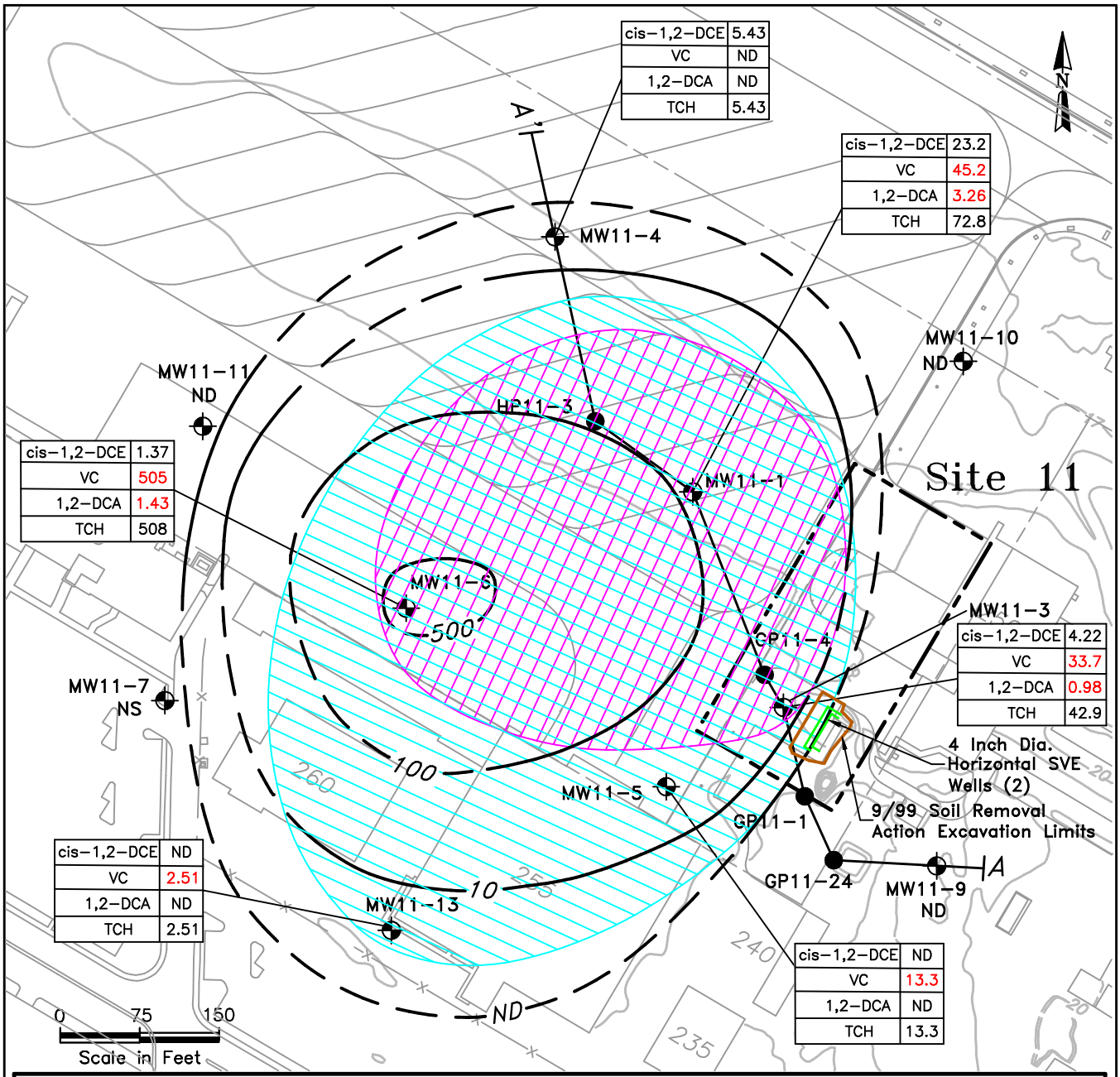
FIGURE 3-20



Legend

- Monitoring Well, Shallow Zone
- Geoprobe/Hydropunch Location (Sampled 1/97 or 1/98)
- ND Not Detected
- NS Not Sampled
- PSG Project Screening Goal
- SVE Soil Vapor Extraction

Note: Units are µg/L. Values in Red Exceed PSGs.

- 10 Total Chlorinated Hydrocarbon (TCH) Contour; Dashed Where Inferred
- Estimated Extent of 1,2–Dichloroethane (1,2–DCA) > PSG (0.12 µg/L)
- Estimated Extent of Vinyl Chloride (VC) > PSG (0.02 µg/L);

The PSG for cis–1,2–Dichloroethene (cis–1,2–DCE) = 61µg/L

- A — A' Hydrogeologic Cross–Section Line
- 270 Building ID
- IRP Site Boundary Line

ERM

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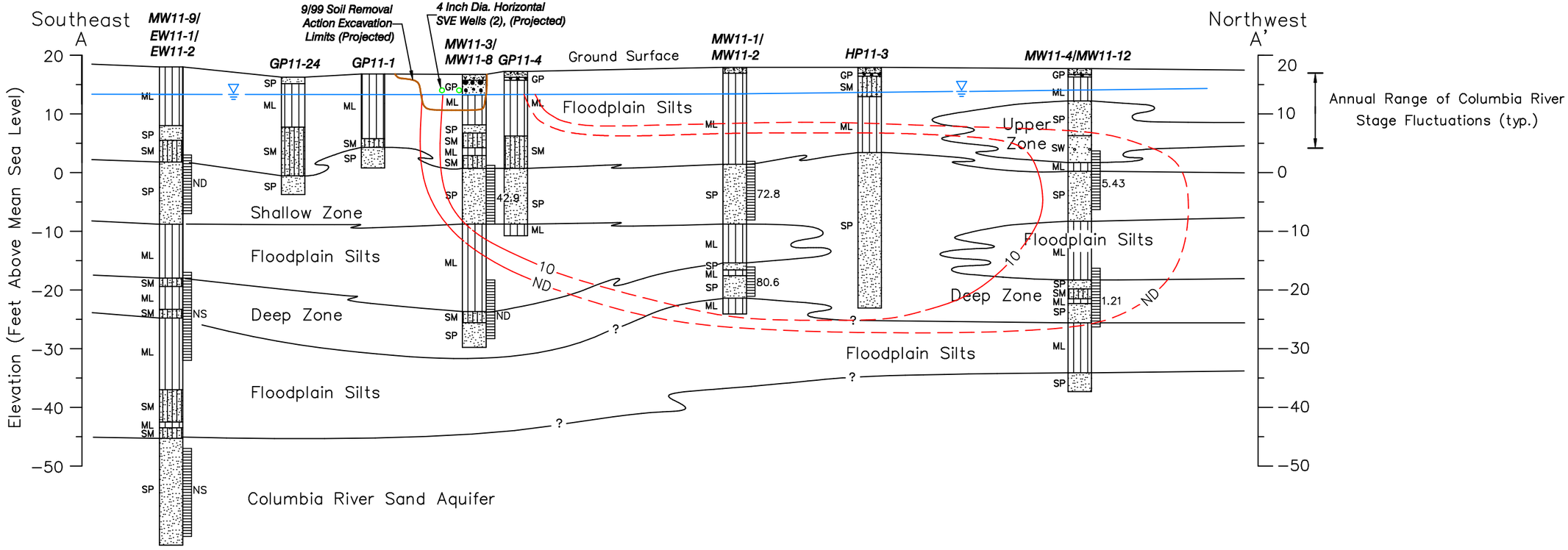
IRP SITE 11
SHALLOW ZONE
EXTENT OF CHLORINATED HYDROCARBONS IN GROUNDWATER
JANUARY 2000
142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3–21



Notes: 1. See Figure 3–7 for Cross Section Orientation

Legend

10.8	Total Chlorinated Hydrocarbon Concentration (TCH) in January 2000 (µg/L)
	Screened Interval
	January 2000 Water Level in Shallow Zone
10	Line of Equal TCH Concentration (µg/L); Location Approximate: Dashed Where Inferred
ND	Not Detected
NS	Not Sampled
SVE	Soil Vapor Extraction

	Concrete
	Silt/Clayey Silt/Sandy Silt
	Clayey Sand
	Silty Sand
	Poorly Graded Gravelly Sand/Sand
	Well Graded Gravelly Sand/Sand
	Gravel/Sandy Gravel

0 100
Feet
Vertical Exaggeration = 5x

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60497138.dwg, 01/03/01

ERM

IRP SITE 11
VERTICAL DISTRIBUTION OF TOTAL CHLORINATED HYDROCARBONS IN GROUNDWATER
JANUARY 2000
142nd FW, PORTLAND ANGB
PORTLAND INTERNATIONAL AIRPORT
PORTLAND, OREGON

FIGURE 3–22

following:

- Both the estimated carcinogenic risks and the noncarcinogenic hazards are acceptable for Base workers, construction workers, and reservists under USEPA and ODEQ guidelines.

- The potential carcinogenic risk and noncarcinogenic hazard associated with soil exposures under the on-site residential land-use scenario are less than USEPA and ODEQ guidelines for evaluation of acceptable risk. However, the total carcinogenic risk and noncarcinogenic hazard for hypothetical on-site residents exceed both USEPA and ODEQ levels of acceptable risk, as a result of assumed exposures to groundwater under this scenario. The unacceptable risks are associated with the presence of benzene; 1,2-DCA; and VC in groundwater. In addition, the presence of cis-1,2-DCE in both soil and groundwater results in a cumulative hazard index (HI) for this contaminant that exceeds USEPA and ODEQ guidelines. By extension of the results for the on-site residential scenario, the potential future risks to off-site residents related to the possible off-site migration and residential use of contaminated groundwater also exceed USEPA and ODEQ criteria.

- Reported lead concentrations in soil were below the USEPA screening level for an unrestricted-use scenario, thus lead in soil is not expected to pose an unacceptable risk.

3.11.4 Recommendation

Due to the extent and concentrations of VOCs in groundwater at IRP Site 11, remediation is necessary to prevent possible off-site migration and residential use of the contaminated groundwater. Remedial alternatives have been developed and are presented later in this FS for the treatment of groundwater contaminated with VOCs.

Contaminated soil remaining at the excavation limits of the 1999 soil removal action should also be remediated, to prevent potential leaching of contaminants to groundwater. During the 1999 soil removal action, soil vapor extraction (SVE) piping was installed in the imported excavation backfill material. SVE removes VOCs and TPH through volatilization and enhanced aerobic bioremediation. The SVE system at Site 11 should be completed and placed in operation to treat the contaminated soil.

In order to begin a non-time critical removal action of VOCs in groundwater, the groundwater EE/CA described in Section 2.8.1 was initiated at IRP Site 11 (ERM 2001b). The groundwater EE/CA is currently being designed and is expected to be constructed during the year 2002. The purpose of the EE/CA is to remove a large amount of VOC mass from Shallow Zone groundwater in order to stop or slow migration of VOCs to downgradient areas of Shallow Zone groundwater and to Deep Zone groundwater. The design focuses on the central area of the Shallow Zone VOC plume, where concentrations of VC and cis-1,2-DCE, the primary contaminants of concern at IRP Site 11, are above approximately 100 µg/l. In addition to treatment of Shallow Zone groundwater at IRP Site 11, the EE/CA also presents a plan to remediate the area of contaminated soil remaining following the 1999 soil removal action described above. This remedial action will consist of completing and activating the SVE system, as mentioned, as well as injecting an oxygen releasing material into the vadose zone soil that becomes saturated during the wetter months. Although a significant reduction of VOCs is expected during the groundwater EE/CA implementation, a conservative position is taken in this FS by not considering this reduction during the development and evaluation of the remedial alternatives presented later in the document.

SECTION 4.0

DEVELOPMENT OF REMEDIAL ALTERNATIVES

In the preceding section (Section 3.0, Description of IRP sites), each of the IRP sites at the Portland ANGB was described with respect to the site history, nature and extent of contamination, the environmental and human health risk, and a recommendation for RA. As described in Section 3.0, IRP Sites 2, 9, and 11 are recommended for further evaluation of RA.

In this section, the proposed remedial alternatives are identified and the process by which the proposed remedies were developed and evaluated, based on USEPA (USEPA 1988) and ODEQ (ODEQ 1998b) guidance, is presented. The remedial alternatives will be compared and evaluated further in Section 5.0, which presents the preferred remedial alternatives proposed for the IRP sites.

The process of identifying RA alternatives for IRP Sites 2, 9, and 11 involves the following primary steps:

- **Identification of ARARs**: "Applicable" requirements are substantive environmental protection requirements specifically addressing a hazardous substance, pollutant, contaminant, activity, location, or other circumstance at a site. "Relevant and appropriate" requirements are those that, while not applicable, are sufficiently similar to circumstances encountered at a site that their use is well suited.

- **Development of RAOs**: RAOs provide specific goals for each of the affected media (i.e., soil, groundwater, etc.) at the IRP sites requiring remediation. These goals are typically based on achievement of a specified clean-up level, or specified acceptable risk level.

- **Development of General Response Actions**: General response actions are broadly defined as measures designed to prevent or minimize the adverse environmental impacts to satisfy the RAOs.

- **Identification and Screening of Technologies**: Once general response actions are identified, technologies that are capable of achieving the RAOs are identified, and subsequently "screened" to provide a short list of technologies appropriate for further consideration.

- **Development of Remedial Alternatives**: Using the RAOs, general response actions, and technologies known to be applicable to the COCs, remedial alternatives are then developed for comparison and further evaluation relative to the USEPA and ODEQ criteria.

4.1 ARARs

Section 121 of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requires RAs to comply with all ARARs formally promulgated under Federal and State environmental laws. "Applicable" requirements are substantive environmental protection requirements specifically addressing a hazardous substance, pollutant, contaminant, RA, location, or other circumstance at a site. "Relevant and appropriate" requirements are those that, while not applicable, are sufficiently similar to circumstances encountered at a site that their use is well suited. Administrative requirements, such as Federal, State, or local permitting, for RAs completed entirely on-site are waived under CERCLA Section 121(e)(1).

There are three types of ARARs:

- Location-specific ARARs are restrictions imposed on activities or concentrations of hazardous substances solely because they occur in special locations.

- Chemical-specific ARARs are health- or risk-based criteria that establish the acceptable amount or concentration of a chemical that may be found in or discharged to the ambient environment.

- Action-specific ARARs set controls or restrictions on design and performance aspects of activities at the site.

ARARs are progressively identified on a site-specific basis as the RI/FS proceeds. During the RI, confirmation of contamination at a site, identification of the specific contaminant(s), and subsequent laboratory analysis and quantification allow for the determination of chemical-specific ARARs. These chemical-specific ARARs, along with chemical-specific guidance "to be considered," are identified in this section, along with action- and location-specific ARARs identified as part of the FS process.

4.1.1 Federal Applicable or Relevant and Appropriate Requirements

4.1.1.1 Safe Drinking Water Act

Federal regulations pursuant to the Safe Drinking Water Act govern the quality of groundwater that is or could be used for drinking water purposes. Safe Drinking Water Act MCLs specified in Title 40, Part 141, Sections 11 to 16 of the Code of Federal Regulations are chemical-specific ARARs for groundwater at the Portland ANGB. MCLs for the constituents identified at the Portland ANGB are listed in Tables 4-1 and 4-2.

4.1.1.2 Clean Water Act

The Federal Clean Water Act and pursuant regulations provide potential location-, chemical-, and action-specific ARARs, such as water quality standards and wastewater discharge requirements. RAs that involve discharge to surface water will require compliance with the substantive requirements of the Clean Water Act.

4.1.1.3 Clean Air Act

The Federal Clean Air Act provides potential action- and chemical-specific ARARs for IRP activities that may release contaminants to the atmosphere. RAs that involve discharge of contaminants, particularly VOCs, to the atmosphere will require compliance with the substantive requirements of the Clean Air Act.

4.1.1.4 Resource Conservation and Recovery Act

Federal Resource Conservation and Recovery Act (RCRA) regulations contain requirements that apply to the generation, management, and disposal of hazardous waste. Based on the *Listed Hazardous Waste Evaluation* (ERM 1999c) prepared by ERM, contaminated media containing TCE and degradation product chlorinated VOCs at IRP Sites 1, 2, 3, 4, and 5 meet the criteria for hazardous waste under RCRA. Soil, sediment, surface water, and groundwater waste containing TCE and generated from these sites should be managed as hazardous waste. Hazardous waste generation, storage, and transport requirements under RCRA are applicable to these materials.

TABLE 4-1

Federal and Oregon Numeric Criteria for VOCs and SVOCs in Groundwater
142nd FW, Portland ANGB, Portland, Oregon

Analyte	Federal Primary MCL (µg/l)	Oregon GRC (1) (µg/l)	USEPA Region 9 Carcinogenic Tap Water PRG (µg/l)	USEPA Region 9 Non-Carcinogenic Tap Water PRG (µg/l)	Project Screening Goal (µg/l)
Acenaphthene	--	2,000	--	370	370
Acetone	--	--	--	610	610
Anthracene	--	10,000	--	1,800	1,800
Benzene	5	3	0.39	10	0.39
Benzo(a)anthracene	--	0.01	0.092	--	0.01
Benzo(a)pyrene	0.2	0.01	0.0092	--	0.0092
Benzo(b)fluoranthene	--	0.01	0.092	--	0.01
Benzo(k)fluoranthene	--	0.01	0.92	--	0.01
Benzoic Acid	--	--	--	150,000	150,000
Benzyl Alcohol	--	--	--	11,000	11,000
Bis(2-ethylhexyl)phthalate	6	4	4.8	730	4
Bromochloromethane	--	--	--	--	--
Bromodichloromethane	100*	0.7	0.18	120	0.18
2-Butanone	--	--	--	--	--
Butylbenzylphthalate	--	--	--	7,300	7,300
Carbon disulfide	--	--	--	21	21
4-Chloro-3-Methylphenol	--	--	--	--	--
Chlorobenzene	100	700	--	39	39
Chloroform	100*	10	0.16	61	0.16
Chloromethane	--	--	1.5	--	1.5
Chrysene	--	0.01	9.2	--	0.01
Dibenzofuran	--	--	--	24	24
1,2-Dichlorobenzene	600	--	--	370	370
1,3-Dichlorobenzene	--	--	--	180	180
1,4-Dichlorobenzene	75	--	0.47	1,400	0.47
1,1-Dichloroethane	--	--	--	810	810
1,2-Dichloroethane	5	--	0.12	370	0.12
1,1-Dichloroethene	7	0.1	0.046	55	0.046
cis-1,2-Dichloroethene	70	70	--	61	61
trans-1,2-Dichloroethene	100	100	--	120	100
total-1,2-Dichloroethene	--	--	--	55	55
1,2-Dichloropropane	5	--	0.16	6.9	0.16
Diethylphthalate	--	--	--	29,000	29,000
2,4-Dimethylphenol	--	--	--	730	730
Dimethylphthalate	--	--	--	370,000	370,000
Di-n-butylphthalate	--	--	--	3,700	3,700
Di-n-octylphthalate	--	--	--	730	730
Ethylbenzene	700	700	--	1,300	700
Ethylene glycol	--	--	- -	73,000	73,000
Fluoranthene	--	1,000	--	1,500	1,000
Fluorene	--	1,000	--	240	240
Methylene chloride (dichloromethane)	5	5	4.3	1,600	4.3
Methyl ethyl ketone	--	--	--	1,900	1,900
2-Methylnaphthalene	--	--	--	--	--
2-Methylphenol	--	--	--	1,800	1,800
3/4-Methylphenol	--	--	--	180	180
4-Methylphenol	--	--	--	180	180
Naphthalene	--	100	--	240	100

TABLE 4-1

Federal and Oregon Numeric Criteria for VOCs and SVOCs in Groundwater
142nd FW, Portland ANGB, Portland, Oregon

Analyte	Federal Primary MCL (µg/l)	Oregon GRC (1) (µg/l)	USEPA Region 9 Carcinogenic Tap Water PRG (µg/l)	USEPA Region 9 Non-Carcinogenic Tap Water PRG (µg/l)	Project Screening Goal (µg/l)
Pentachlorophenol	1	0.7	0.56	1,100	0.56
Phenanthrene	--	--	--	--	--
Phenol	--	--	--	22,000	22,000
Pyrene	--	1,000	--	180	180
1,1,2,2-Tetrachloroethane	--	--	0.055	--	0.055
Tetrachloroethene	5	2	1.1	61	1.1
Toluene	1,000	1,000	--	720	720
1,1,2-Trichloroethane	5	5	0.2	24	0.2
Trichloroethene	5	5	1.6	37	1.6
1,2,4-Trimethylbenzene	--	--	--	12	12
1,3,5-Trimethylbenzene	--	--	--	12	12
Vinyl chloride	2	0.04	0.02	--	0.02
Xylenes	10,000	7,000	--	1,400	1,400

Notes:
-- - Standard not established
* - MCL for total trihalomethanes
µg/l - Micrograms per liter
GRC - Oregon Groundwater Reference Concentration OAR 340-122-045(6)(b)
MCL - Maximum Contaminant Level (Enforceable Level) (USEPA, February, 1996, Drinking Water and Health Advisories)
PRG - Preliminary Remediation Goal
SVOC - Semivolatile organic compound
USEPA - United States Environmental Protection Agency
VOC - Volatile organic compound
(1) Oregon rules state that GRCs are not to be used as an ARAR for site cleanups conducted under CERCLA. They are included here for comparison purposes only.
Note: There are no total petroleum hydrocarbons (TPH) standards for groundwater in Oregon. Soil TPH detections require follow-up analysis of VOCs, SVOCs, and/or metals in groundwater.

TABLE 4-2

Federal and Oregon Numeric Criteria for Metals in Groundwater
142nd FW, Portland ANGB, Portland, Oregon

Analyte	Federal Primary MCL (µg/l)	Oregon GRC (1) (µg/l)	USEPA Region 9 Carcinogenic Tap Water PRG (µg/l)	USEPA Region 9 Non-Carcinogenic Tap Water PRG (µg/l)	Background Concentration* (µg/l)	Project Screening Goal (µg/l)
Antimony	6	--	--	15	--	6
Arsenic	50	0.04	0.045	11	7.83	7.83
Beryllium	4	0.02	0.016	180	3.8	3.8
Cadmium	5	5	--	18	--	5
Chromium	100	100	--	180 (2)	145	145
Copper	--	1,300	--	1,400	44.7	1,300
Lead	--	15	--	--	15.7	15.7
Mercury	2	2	--	3.7 (3)	0.121	2
Nickel	--	100	--	730	78	100
Selenium	50	--	--	180	--	50
Silver	--	50	--	180	--	50
Thallium	2	--	--	2.9 (4)	--	2
Zinc	--	--	--	1,100	142	1,100

Notes:
MCL - Maximum Contaminant Level (Enforceable Level) (USEPA, February, 1996, Drinking Water and Health Advisories)
GRC - Groundwater Reference Concentration, OAR 340-122-045(6)(b)
USEPA - United States Environmental Protection Agency
PRG - Preliminary Remediation Goal
µg/l - Micrograms per liter
-- - Standard not established
(1) Oregon rules state that GRCs are not to be used as an ARAR for site cleanups conducted under CERCLA. They are included here for comparison purposes only.
(2) PRG listed is for Chromium VI; no tap water PRG exists for total chromium.
(3) PRG listed is for methyl mercury; no tap water PRG exists for elemental mercury.
(4) PRG listed is for thallium chloride; no tap water PRG exists for total thallium.

4.1.2 Federal Guidance to be Considered

In addition to Federal and State requirements that may be ARARs for IRP activities, Federal nonregulatory criteria must be considered. Chemical-specific Federal nonregulatory criteria that may be used to help characterize risks and to set cleanup goals include the USEPA Region 9 preliminary remediation goals (PRGs).

USEPA Region 9 PRGs (USEPA Region 9 2000) are risk-based preliminary screening levels that are used to assess potential concerns related to chemical occurrence defined during previous and ongoing investigations. The PRGs are generally used to eliminate sites of interest that are not of concern with regard to human health risk. The PRGs developed by the USEPA Region 9 for carcinogenic substances correspond to an excess lifetime cancer risk of 1×10^{-6}; the PRGs for noncarcinogenic substances correspond to a HI of 1.

4.1.3 State Applicable or Relevant and Appropriate Requirements

The State of Oregon laws governing cleanup of contaminated sites are outlined in Oregon Revised Statute 465. Environmental Cleanup Rules developed in support of the Oregon Revised Statute laws are included in the OAR 340-122. OAR 340-122 outlines cleanup requirements to ensure the protection of human health and the environment while allowing flexibility in site-specific application of these requirements. OAR 340-122 defines a three-step approach for establishing cleanup requirements for individual sites: (1) determining human and ecological exposure pathways of concern for contaminants, (2) establishing appropriate cleanup standards, and (3) selecting cleanup actions that would best achieve the cleanup standards.

OAR 340-122 provides a number of options for establishing site-specific cleanup levels. Each of these options uses human health risk as the main determinant in setting cleanup levels. The options outlined in OAR 340-122 are described in the sections below. In addition, ODEQ requires that PRGs established by the USEPA Region 9 be reviewed as potential screening-level concentrations. Potential State of Oregon ARARs for soil and groundwater at the Portland ANGB, and the soil screening levels from the USEPA Region 9 PRG tables, are presented in Tables 4-1 through 4-5.

TABLE 4-3

Federal Numeric Criteria for Organic Compounds and Metals in Surface Water
142nd FW, Portland ANGB, Portland, Oregon

Analyte	USEPA Ambient Water Quality Criteria* (1) (µg/l)	Project Screening Goal (µg/l)
Organic compounds:		
Acenaphthene	520 a,b	520
Acetone	--	610
Benzene	--	0.39
Benzo(a)anthracene	--	0.01
Benzo(a)pyrene	--	0.0092
Benzo(b)fluoranthene	--	0.01
Benzo(k)fluoranthene	--	0.01
Bis(2-ethylhexyl)phthalate	160 a	160
Bromochloromethane	--	--
Bromodichloromethane	--	0.18
Butylbenzylphthalate	3 a	3
Carbon disulfide	--	21
4-Chloro-3-Methylphenol	--	--
Chlorobenzene	50 a,b	50
Chloroform	1,240 a	1,240
Chloromethane	--	1.5
1,2-Dichlorobenzene	763 a	763
1,4-Dichlorobenzene	763 a	763
1,1-Dichloroethane	--	810
1,2-Dichloroethane	20,000 a	20,000
1,1-Dichloroethene	--	0.046
cis-1, 2-Dichloroethene	--	61
trans-1,2-Dichloroethene	--	100
total-1,2-Dichloroethene	--	55
1,2-Dichloropropane	5,700 a	5,700
Diethylphthalate	3 a	3
Dimethylphthalate	3 a	3
Di-n-butylphthalate	3 a	3
Di-n-octylphthalate	3 a	3
Ethylbenzene	--	700
Ethylene glycol	--	73,000
Fluorene	--	240
Methylene chloride (dichloromethane)	--	4.3
Methyl ethyl ketone	--	1,900
2-Methylnaphthalene	--	--
4-Methylphenol	--	180
Naphpthalene	620 a	620
Pyrene	--	180
Tetrachloroethene	840 a	840
Toluene	--	720
1,1,2-Trichloroethane	9,400 a	9,400
Trichloroethene	21,900 a,b	21,900
1,2,4-Trimethylbenzene	--	12
1,3,5-Trimethylbenzene	--	12
Vinyl chloride	--	0.02
Xylenes	--	1,400

TABLE 4-3

Federal Numeric Criteria for Organic Compounds and Metals in Surface Water
142nd FW, Portland ANGB, Portland, Oregon

Analyte	USEPA Ambient Water Quality Criteria* (1) (µg/l)	Project Screening Goal (µg/l)
Metals:		
Antimony	--	6
Arsenic	150	150
Beryllium	5.3 a	5.3
Cadmium	2.2	2.2
Chromium	74	74
Copper	9.0	9.0
Lead	2.5	2.5
Mercury	0.77	0.77
Nickel	52	52
Selenium	5.0	5.0
Silver	--	50
Thallium	40 a	40
Zinc	120	120

Notes:

PSG - Project Screening Goal

USEPA - United States Environmental Protection Agency

µg/l - Micrograms per liter

-- - Criterion not established

*Numbers presented correspond to freshwater values for protection of aquatic life, and are for chronic exposu
unless otherwise noted. Hardness-dependent values were calculated using an assumed hardness of
100 milligrams per liter.

(1) Source: USEPA 1999, except as noted.

a - Lowest Observed Effect Level; CARWQCB 1998.

b - Exposure duration (i.e., acute/chronic) not specified

For constituents with no Ambient Water Quality Criteria, the PSG derived for
groundwater is used as the surface water PSG.

TABLE 4-4

Federal and Oregon Numeric Criteria for VOCs, SVOCs, and TPH in Soil
142nd FW, Portland ANGB, Portland, Oregon

Analyte	Oregon Maximum Residential (1,2) (mg/kg)	Oregon Maximum Industrial (1,2) (mg/kg)	USEPA Region 9 Carcinogenic Industrial Soil PRG (mg/kg)	USEPA Region 9 Non-Carcinogenic Industrial Soil PRG (mg/kg)	USEPA Region 9 Soil Screening Level, DAF=1 (3) (mg/kg)	Oregon SCL (4) (mg/kg)	Project Screening Goal (mg/kg)
Acetone	--	--	--	8,800	0.8	--	0.8
Acenaphthene	20,000	100,000	--	11,000	29	2,000	29
Acenaphthylene	--	--	--	--	--	--	--
Anthracene	80,000	600,000	--	160,000	590	20,000	590
Benzene	1	2	1.4	2.4	0.002	0.1	0.002
Benzo(a)anthracene	0.1	1	2.6	--	0.08	0.1	0.08
Benzo(b)fluoranthene	0.1	1	2.6	--	0.2	0.1	0.1
Benzo(k)fluoranthene	0.1	1	26	--	2	0.1	0.1
Benzo(a)pyrene	0.1	1	0.26	--	0.4	0.1	0.1
Benzo(g,h,i)perylene	--	--	--	--	--	--	--
Benzoic Acid	--	--	--	2,700,000	20	--	20
Benzyl Alcohol	--	--	--	200,000	--	--	200,000
Bis(2-ethylhexyl)phthalate	50	400	140	14,000	--	4	4
Bromodichloromethane	5	40	1.4	620	0.03	0.01	0.01
2-Butanone (MEK)	--	--	--	27,000	--	--	27,000
Butylbenzylphthalate	--	--	--	140,000	810	--	810
Carbazole	--	--	95	--	0.03	--	0.03
Chlorobenzene	5,000	40,000	--	220	0.07	--	0.07
Chrysene	0.1	1	260	--	8	--	0.1
Dibenz(a,h)anthracene	0.1	1	0.26	--	0.08	--	0.08
Dibenzofuran	--	--	--	2,300	--	--	2,300
1,4-Dichlorobenzene	--	--	8.5	17,000	0.1	--	0.1
1,3-Dichlorobenzene	--	--	--	2,000	--	--	2,000
1,2-Dichlorobenzene	--	--	--	3,900	0.9	--	0.9
1,2-Dichloroethane	7	60	0.55	51	0.001	--	0.001
cis-1, 2-Dichloroethene	3,000	20,000	--	100	0.02	--	0.02
trans-1,2-Dichloroethene	5,000	40,000	--	270	0.03	--	0.03
Diethylphthalate	--	--	--	860,000	--	--	860,000
2,4-dimethylphenol	--	--	--	21,000	0.4	--	0.4
Di-n-butylphthalate	--	--	--	68,000	270	--	270
Di-n-octylphthalate	--	--	--	14,000	10,000	--	10,000
Ethylbenzene	15,000	20,000	--	5,800	0.7	--	0.7
Ethylene glycol	--	--	--	1,400,000	- -	- -	1,400,000
Fluoranthene	10,000	80,000	--	27,000	210	--	210
Fluorene	10,000	80,000	--	18,000	28	--	28
Hexachloroethane	300	2,000	140	680	0.02	--	0.02
2-Hexanone	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	0.1	1	2.6	--	0.7	--	0.1
4-Methyl-2-pentanone (MIBK)	--	--	--	2,800	--	--	2,800
Methyl ethyl ketone (MEK)	--	--	--	27,000	--	--	27,000
2-Methylnaphthalene	--	--	--	--	--	--	--
2-Methylphenol	--	--	--	34,000	0.8	--	0.8
3/4-Methylphenol	--	--	--	5,300	--	--	5,300
Methylene chloride (dichloromethane)	--	--	18	7,800	0.001	--	0.001
Naphthalene	--	--	--	4,400	4	--	4
N-Nitrosodiphenylamine	--	--	390	--	0.06	--	0.06
Pentachlorophenol	5	50	7.9	10,000	0.003	5	0.003
Phenanthrene	--	--	--	--	--	--	--
Phenol	--	--	--	100,000	5	--	5
Polychlorinated biphenyls (PCBs)	0.08	0.7	0.34	--	--	0.08	0.08
Aroclor-1016	--	--	0.34	65	--	--	0.34
Aroclor-1254	--	--	0.34	19	--	--	0.34
Pyrene	8,000	60,000	--	20,000	210	6,000	210
1,1,2,2-Tetrachloroethane (1,1,2,2-PCA)	--	--	0.87	--	0.0002	--	0.0002
Tetrachloroethene (PCE)	9	10	16	160	0.003	0.3	0.003
Toluene	5,000	6,000	--	2,700	0.6	80	0.6
TPH-C10 to C24 Aliphatics	--	--	--	--	--	--	--
TPH-Jet fuel A	--	--	--	--	--	--	--
TPH-Heavy Oil	--	--	--	--	--	--	--
TPH-Diesel (5)	--	--	--	--	--	100	100
TPH-Gasoline (5)	--	--	--	--	--	40	40

TABLE 4-4

Federal and Oregon Numeric Criteria for VOCs, SVOCs, and TPH in Soil
142nd FW, Portland ANGB, Portland, Oregon

Analyte	Oregon Maximum Residential (1,2) (mg/kg)	Oregon Maximum Industrial (1,2) (mg/kg)	USEPA Region 9 Carcinogenic Industrial Soil PRG (mg/kg)	USEPA Region 9 Non-Carcinogenic Industrial Soil PRG (mg/kg)	USEPA Region 9 Soil Screening Level, DAF=1 (3) (mg/kg)	Oregon SCL (4) (mg/kg)	Project Screening Goal (mg/kg)
Trichloroethene (TCE)	20	20	6.1	79	0.003	0.4	0.003
Vinyl chloride	0.03	0.05	0.048	--	0.0007	0.008	0.0007
m,p-Xylenes	--	--	--	16,000	10	--	10
o-Xylenes	--	--	--	22,000	9	--	9
Total xylenes	2,000	2,500	--	18,000	10	800	10

Notes:
USEPA - United States Environmental Protection Agency
PRG - Preliminary Remediation Goal
DAF - Dilution and attenuation factor
VOC - Volatile organic compound
SVOC - Semivolatile organic compound
TPH - Total petroleum hydrocarbons
SCL - Soil cleanup level
mg/kg - Milligrams per kilogram
-- - Standard not established
(1) Oregon Department of Environmental Quality Hazardous Substance Remedial Action Rules, Appendix 1
(2) Maximum Allowable Soil Concentration
(3) Dilution and attenuation factor of 1 used; assumes no dilution or attenuation between source and receptor.
(4) Oregon Soil Cleanup Levels (OAR 340-122-045)
(5) Level 1 cleanup values in OAR 340-122-335 are quoted for Oregon SCLs for TPH.

TABLE 4-5

Federal and Oregon Numeric Criteria for Metals in Soil
142nd FW, Portland ANGB, Portland, Oregon

Analyte	Oregon Maximum Residential (1,2) (mg/kg)	Oregon Maximum Industrial (1,2) (mg/kg)	USEPA Region 9 Carcinogenic Industrial Soil PRG (mg/kg)	USEPA Region 9 Non-Carcinogenic Industrial Soil PRG (mg/kg)	USEPA Region 9 Soil Screening Level, DAF=1 (3) (mg/kg)	Background Concentration* (mg/kg)	Project Screening Goal (mg/kg)
Antimony	--	--	--	680	0.3	0.59	0.59
Arsenic	0.4	3	2.4	380	1	5.81	5.81
Barium	20,000	140,000	--	--	--	--	20,000
Beryllium	0.1	1	1.1	8,500	3	1.24	1.24
Cadmium	100	1,000	3,000	850	0.4	0.42	0.42
Chromium	1,000	1,500	450	--	2	39.2	39.2
Copper	10,000	80,000	--	63,000	--	33.5	10,000
Lead	200	2,000	--	1,000	--	27.8	200
Mercury	80	600	--	68 (4)	--	0.09	80
Nickel	5,000	40,000	--	34,000	7	34.4	34.4
Selenium	--	--	--	8,500	0.3	--	0.3
Silver	1,500	10,000	--	8,500	2	0.51	2
Thallium	--	--	--	140 (5)	0.4 (5)	0.67	0.67
Zinc	--	--	--	100,000	620	87.9	620

Notes:
USEPA - United States Environmental Protection Agency
DAF - Dilution and attenuation factor
PRG - Preliminary Remediation Goal
mg/kg - Milligrams per kilogram
-- - Standard not established
(1) Oregon Department of Environmental Quality Hazardous Substance Remedial Action Rules, Appendix 1
(2) Maximum Allowable Soil Concentration
(3) Dilution and attenuation factor of 1 used; assumes no dilution or attenuation between source and receptor.
(4) No PRGs are available for elemental mercury; values given are for methyl mercury.
(5) USEPA PRG and Soil Screening Level values are for thallium chloride.
* Background calculated by 90% Upper Confidence Limit (UCL).

4.1.3.1 Oregon Soil Matrix Cleanup Levels

Oregon Soil Matrix Cleanup Levels (OAR 340-122-315 through 335) apply to soil remediation of petroleum releases from UST systems at relatively simple sites. Individual sites are evaluated by assigning a numerical score for each of the following parameters: (1) depth to groundwater, (2) mean annual precipitation, (3) native soil or rock type, (4) sensitivity of uppermost aquifer, and (5) potential receptors (water supply wells). Total scores for each site determine which of three cleanup levels for gasoline-range hydrocarbons (40, 80, or 130 mg/kg) and diesel-range hydrocarbons (100, 500, or 1,000 mg/kg) apply.

4.1.3.2 Oregon Soil Cleanup Levels

Oregon rules specifically indicate that the Oregon Soil Cleanup Levels (SCLs) are not to be used as an ARAR for site cleanups conducted under CERCLA. However, they are discussed here for completeness and comparison to other chemical-specific ARARs and screening levels.

Oregon SCLs (OAR 340-122-045) comprise Maximum Allowable Soil Concentrations (MASCs) for remediation of 64 common organic compounds for sites where contaminant leaching to groundwater is a concern. SCLs for compounds identified at the Portland ANGB are included in Table 4-4. Oregon SCL concentrations were developed based on human health risk; OAR 340-122-045(3)(a) states that at sites with multiple contaminants, these cleanup levels may be prorated downward to keep health risks below targeted levels.

4.1.3.3 Groundwater Reference Concentrations

Oregon rules indicate that the Groundwater Reference Concentrations (GRCs) are not to be used as an ARAR for site cleanups conducted under CERCLA. However, they are discussed for completeness and comparison to other chemical-specific ARARs and screening levels.

GRCs are presented in the OARs for the purpose of establishing alternative soil cleanup levels under OAR 340-122-045. They were developed as maximum allowable groundwater concentrations for 64 organic compounds, 11 metals, and cyanide. GRCs for constituents identified at the Portland ANGB are included in Tables 4-1 and 4-2. If an Oregon GRC is not available for a particular contaminant, the ODEQ

generally accepts the Federal MCL or Secondary Maximum Contaminant Level for the contaminant. If an MCL or Secondary Maximum Contaminant Level is not available for the contaminant, ODEQ generally accepts concentrations that are protective of human health to an excess cancer risk level of 1×10^{-6}.

4.1.3.4 Maximum Allowable Soil Concentrations

MASCs (OAR 340-122-045) were developed for sites where groundwater impacts are not a concern. Oregon has developed residential and industrial MASCs. MASCs for constituents identified at the Portland ANGB are listed in Tables 4-4 and 4-5.

4.1.3.5 Oregon Air Pollution Control Requirements

Air emissions from site RAs are regulated under two State requirements: *Notice of Construction and Approval Plans* (OAR 340-028-800 to 820), and *Rules Applicable to Sources Required to Have Air Contaminant Discharge Permits* (OAR 340-028-0600). Of these regulations, the only potentially substantive air pollution control requirement that could be considered an ARAR for the possible RAs at the Portland ANGB is contained in OAR 340-028-0600(1) which states that degradation of existing air quality by new contamination sources shall be minimized to the greatest extent possible.

Compliance with OAR 340-028-0600(1) is defined as compliance with emission requirements in the ODEQ's Hazardous Air Pollutant regulations (OAR 340-032-0105 through 0130). Rates of VOC emissions from the anticipated RAs would be far lower than *de minimis* rates specified in OAR 340-032-0130. Therefore, anticipated RAs are expected to be in compliance with the anti-degradation provision in OAR 340-028-0600(1).

4.1.3.6 Underground Injection Well Requirements

A well or boring used for the purpose of injecting a remediation fluid is classified as a Class V Injection Well by ODEQ. The ODEQ requires submittal of an Underground Injection Control (UIC) Registration for Aquifer Remediation Systems for RAs where fluids will be injected into the subsurface (e.g., in situ chemical oxidation). In addition to registering injection wells, ODEQ has emphasized several requirements that must be

met during remediation using underground injection. The primary components of these requirements are:

- The Air National Guard (ANG) must provide public notice (published in local newspaper and mailers sent to interested parties) and a 30-day opportunity to comment on any proposed injection activities. A public meeting must be held to receive comments if requested by 10 or more persons or by a group with a membership of 10 or more.

- No activities shall be conducted that exacerbate existing groundwater contamination or that could cause an adverse impact on existing or potential beneficial uses of groundwater.

- Activities must include an adequate monitoring and reporting program that will allow the public to confirm that the activities are not having an adverse impact.

4.1.4 Wastewater Discharge Requirements

Non-hazardous wastewater generated during RAs will require testing to ensure compliance with the limits set by the City of Portland Bureau of Environmental Services, the operator of the publicly-owned treatment works (POTW) to which the wastewater will be discharged. Wastewater in compliance with these limits may be discharged to the POTW under the existing Portland ANGB discharge permit. If necessary, the water will be treated prior to discharge so that it complied with the POTW limits.

4.2 Remedial Action Objectives

This section presents the development of RAOs for IRP Sites 2, 9, and 11. The RAOs provide media and contaminant-specific (i.e., specific to soil, groundwater, etc.) goals for protecting human health and the environment. The RAOs specify:

- The media and COCs;

- Exposure routes and receptors; and

- Clean-up levels (i.e. acceptable contaminant levels) and applicable criteria.

These criteria are discussed in more detail below:

Media and Contaminants of Concern. The medium of concern for evaluation in the FS is groundwater at IRP Sites 2, 9, and 11. Shallow Zone groundwater is a medium of concern at all three mentioned sites. Deep Zone groundwater is also a media of concern at IRP Sites 2 and 11.

The COCs in groundwater at the Portland ANGB are VOCs. For the purpose of simplifying the discussion of several COCs, the COCs used for this FS were limited to the four most commonly detected compounds: benzene, TCE, cis-1,2-DCE, and VC. These compounds were chosen based on their frequency and distribution of detections above respective PSGs relative to other VOCs detected at the Base. Several other VOCs have been detected at the Base above their PSGs but these detections have either been sporadic and less predictable or have consistently occurred along with detections of the more common VOCs mentioned above.

Specifically, TCE; cis-1,2-DCE; and VC are the COCs at IRP Site 2. Benzene is the COC for IRP Site 9, and cis-1,2-DCE and VC will be used at IRP Site 11.

VC is the primary contaminant of concern in Deep Zone groundwater at IRP Sites 2 and 11. Other VOCs have been detected in samples from Deep Zone monitoring wells at these sites, but not at concentrations significantly higher than the PSGs, as is the case with VC.

Exposure Routes and Receptors. There are several potential exposure pathways for groundwater at the Portland ANGB. As discussed in the beneficial-use survey presented in Section 2.0, some potential pathways correspond with direct exposure to groundwater contaminants, such as ingestion of drinking water or aquatic life exposure via groundwater discharge to surface water. Other pathways involve indirect exposure to groundwater or contaminants in groundwater, such as exposure by indoor air inhalation.

The indoor air inhalation pathway was explored due to the presence of buildings near areas with chemically impacted groundwater. Based on the industrial use of such buildings and on methods developed by the American Society for Testing and Materials (ASTM), risk-based groundwater screening concentrations that result in acceptable indoor air concentrations were calculated for the various contaminants of concern at the Base. The calculations utilized a simple box model (ASTM 1995, Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites, E1739-95) to conservatively represent the transfer of volatile constituents to buildings. The groundwater screening concentrations are presented in Table 4-6. Detected groundwater concentrations less than or

TABLE 4-6

Indoor Air Inhalation Risk Calculation

142nd FW, Portland ANGB, Portland, Oregon

Constituent	Inhalation Slope Factor (mg/kg/d)$^{-1}$	Acceptable Air Concentration (Carcinogenic Effects) (ug/m^3)	Inhalation Reference Dose (mg/kg/d)	Acceptable Air Concentration (Noncarcinogenic Effects) (ug/m^3)	SSSL air (µg/m^3)	H' (dimensionless)	Da (cm^2 /sec)	Dw (cm^2 /sec)	Deff(cap) (cm^2 /sec)	Deff(soil) (cm^2 /sec)	Deff(ws) (cm^2 /sec)	Deff(crack) (cm^2 /sec)	Vfwesp (mg/m$^3_{air}$/ (mg/l$_{water}$)	SSSLwater (µg/l)
Benzene	2.7E-02	8.7E-01	1.7E-03	1.1E+01	8.7E-01	2.3E-01	8.8E-02	9.8E-06	1.96E-05	6.87E-03	5.52E-04	6.87E-03	2.54E-03	3.4E+02
cis-1,2-DCE			1.0E-02	6.7E+01	6.7E+01	1.7E-01	7.4E-02	1.1E-05	2.21E-05	5.78E-03	6.06E-04	5.78E-03	1.82E-03	3.7E+04
trans-1,2-DCE			2.0E-02	1.3E+02	1.3E+02	3.8E-01	7.1E-02	1.2E-05	1.53E-05	5.54E-03	4.31E-04	5.54E-03	3.33E-03	4.0E+04
TCE	6.0E-03	3.9E+00	6.0E-03	4.0E+01	3.9E+00	4.2E-01	7.9E-02	9.1E-06	1.44E-05	6.16E-03	4.11E-04	6.16E-03	3.74E-03	1.0E+03
Vinyl chloride	1.6E-02	1.5E+00	2.9E-02	1.9E+02	1.5E+00	1.1E+00	1.1E-01	1.2E-06	1.44E-05	8.58E-03	4.19E-04	8.58E-03	1.12E-02	1.3E+02

Notes:

1. 1E-02 = 0.01
2. SSSLair = Site Specific Screening Level for air, the minimum of the acceptable air concentration based on carcinogenic effects and the acceptable air concentration based on noncarcinogenic effects.
3. The toxicity information is based on the most current information available from IRIS (USEPA, December 1, 2000) and on other information compiled by USEPA Region 09 (2000).
4. Calculation of acceptable air concentrations followed methods developed by USEPA (1996) and USEPA Region 09 (2000).

Model Parameters

Inhalation Rate (adult)		1.9	m^3/hour	(ODEQ, 2000)
Exposure Time		8	hours/day	(ODEQ, 2000; based on an 8-hour work day)
Exposure Frequency		250	days/year	(ODEQ, 2000; USEPA, 1991, USEPA Region 09, 2000)
Exposure Duration (adult)		20	years	(site-specific, based on a 20 year enlistment in the Armed Services)
Body Weight (adult)		70	kilograms	(ODEQ, 2000; USEPA, 1991, USEPA Region 09, 2000)
Averaging Time (carcinogens)		25550	days	(ODEQ, 2000; USEPA, 1991, USEPA Region 09, 2000)
Averaging Time (noncarcinogens)		7300	days	(ODEQ, 2000; USEPA, 1991, USEPA Region 09, 2000)
volumetic air content (capillary fringe)	øacap =	3.80E-02	(dimensionless)	(ASTM, 1996)
volumetic air content (foundation cracks)	øacrack =	2.60E-01	(dimensionless)	(ASTM, 1996)
volumetic air content (vadose zone)	øas =	2.60E-01	(dimensionless)	(ASTM, 1996)
total soil porosity	øtotal =	3.80E-01	(dimensionless)	(ASTM, 1996)
volumetric water content (capillary fringe)	øwcap =	3.42E-01	(dimensionless)	(ASTM, 1996)
volumetic water content (foundation cracks)	øwcrack =	1.20E-01	(dimensionless)	(ASTM, 1996)
volumetic water content (vadose zone)	øws =	1.20E-01	(dimensionless)	(ASTM, 1996)
thickness of capillary fringe	hcap =	5.00E+00	cm	(ASTM, 1996)
thickness of vadose zone	hvadose =	1.47E+02	cm	(Site-specific assumption, based on a depth of 5 feet to groundwater)
air exchange rate	ER =	3.00E-04	sec^-1	(Site-specific assumption, based on 1 unit volume air exchange per hour)
enclosed space volume/infiltration area ratio	Lb =	6.10E+02	cm	(Site-specific assumption, based on buildings that are approximately 20 feet tall)
depth to ground water (= hcap + hvadose)	Lgw =	1.52E+02	cm	(based on a depth of 5 feet to groundwater)
foundation thickness	Lcrack =	1.50E+01	cm	(ASTM, 1996)
areal fraction of foundation cracks	n =	1.00E-02	(dimensionless)	(ASTM, 1996)
Henry's Law Constant (dimensionless form)	H' =	chemical specific		(USEPA Region 09, 2000)
Diffusion coefficient (air)	Da =	chemical specific		(USEPA Region 09, 2000)
Diffusion coefficient (water)	Dw =	chemical specific		(USEPA Region 09, 2000)

Deff(cap) = [Da x (øacap^3.33)/(øtotal^2)] + [Dw x (1/H') x (øwcap^3.33)/(øtotal^2)] (ASTM, 1996)

Deff(soil) = (Da x (øas^3.33)/(øtotal^2)) + [Dw x (1/H') x (øws^3.33)/(øtotal^2)] (ASTM, 1996)

Deff(ws) = (hcap + hv)/[(hcap/Deff(cap)) + (hv/Deff(soil))] (ASTM, 1996)

Deff(crack) = (Da x (øacrack^3.33)/(øtotal^2)) + [Dw x (1/H') x (øwcrack^3.33)/(øtotal^2)] (ASTM, 1996)

VFwesp = {1000 l/m^3 x H' x [(Deff(ws)/Lgw)/(ER x Lb)]}/{1 + [(Deff(ws)/Lgw)/(ER x Lb)] + [(Deff(ws)/Lgw)/(n x Deff(crack)/Lcrack)]} (ASTM, 1996)

SSSL (water) = SSSL(air)/VFwesp (ASTM, 1996)

equal to these screening levels will not pose an unacceptable risk (as defined by ODEQ regulations) to workers who may be present in these buildings.

VOCs in groundwater at some locations at the Base currently exceed the screening concentrations of some of the compounds listed in Table 4-6. However, the only occupied buildings near impacted groundwater are Buildings 255 and 260 in the vicinity of IRP Site 11. Chlorinated VOCs, primarily VC and cis-1,2-DCE, have been detected in groundwater monitoring wells near these buildings, but recent monitoring has shown that these compounds are at concentrations much less than those calculated in Table 4-6. Because of this, potential indoor air exposures for site personnel currently working in these buildings are acceptable under ODEQ regulations. Furthermore, groundwater concentrations are expected to decrease to concentrations below the indoor air screening levels as a result of interim remedial actions for groundwater. Thus, in the event that a new building is constructed on the Base, indoor air exposures are not expected to pose an unacceptable risk under future conditions. For these reasons, the indoor air inhalation exposure pathway was not retained for further evaluation in this FS.

The exposure pathways retained for the FS include ingestion of CRSA groundwater pumped from municipal wells that would be installed in the Portland well field WEA and ingestion of CRSA groundwater pumped at the Base by Base workers. Neither pathway currently exists, and the pathway involving extraction of CRSA groundwater at the Base is not likely. However, because the CRSA has the capacity to support these scenarios, they must be considered.

Clean-Up Levels and Applicable Criteria. Future RA taken at the Portland ANGB must comply with Federal, State, and local laws and regulations, as discussed in the ARARs section above. In accordance with USEPA guidance, chemical-, action-, and location-specific ARARs have been identified for the COCs at the Portland ANGB.

The RAOs for the Portland ANGB correspond with the exposure pathways and Federal and State requirements. The RAOs are as follows:

- Prevent off-site migration of groundwater containing VOCs above 10^{-6} risk concentrations for individual carcinogens;

- Treat groundwater hot spots of contamination (as defined by ODEQ guidance) to concentrations below significant adverse effect levels which correspond with the Federal MCLs;

- Treat the small area of VOC and TPH impacted soil remaining from the 1999 soil removal action; and

- Prevent on-site exposure to groundwater containing VOCs above 10^{-6} risk concentrations for individual carcinogens.

4.3 General Response Actions

General response actions are broadly defined as measures designed to prevent or minimize the adverse environmental impacts of chemicals, and satisfy the RAOs. Appropriate general response actions for IRP Sites 2, 9, and 11 have been identified based on data collected during the RI and pilot tests performed at the Base. The general response actions developed for remediation of groundwater include:

- No action;

- Institutional controls;

- Engineering controls;

- Groundwater collection, treatment, and discharge; and

- In situ groundwater treatment.

4.3.1 No Action

No Action is a general response action required for consideration in the FS by the National Contingency Plan as a baseline condition. The No Action option is retained for further evaluation. There are no costs associated with this option.

4.3.2 Institutional Controls

Institutional controls are designed to limit exposure to hazardous materials through the use of legal or administrative measures or actions. The technologies and process options developed under the institutional control general response action are briefly described in Table 4-7. Three

TABLE 4-7

Remedial Technology Screening - IRP Sites 2, 9, & 11
142nd FW, Portland ANGB, Portland, Oregon

Risk Drivers	Remedial Action Objectives	General Response Action	Remedial Technologies	Process Options	Description	Effectiveness[1]	Implementability[1]	Cost Effectiveness[1]	Retain?	Reason
Trichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, and Vinyl Chloride in Groundwater	Prevent the off-base migration of groundwater containing VOCs above concentrations corresponding to a Hazard Index greater than 1 or a lifetime excess cancer risk greater than 1x10-6 for individual carcinogens.	**No Action**	No Action	No Action	No institutional controls or treatment.	1	3	3	Yes	Retaining No Action is required for comparison.
		In Situ Treatment - Source area will be treated to reduce VOC concentrations sufficiently to prevent off-base migration of groundwater with unacceptable risk. Preliminary target cleanup levels are MCLs, which will also be protective of human health on site based on an industrial land use scenario	Chemical treatment	Permanganate oxidation	Injection of potassium permanganate into saturated zone. Contaminants are destroyed through oxidation.	3	3	2	Yes	Pilot-scale treatability testing at Base indicates potential for full-scale effectiveness.
				Persulfate oxidation	Injection of sodium persulfate into saturated zone. Contaminants are destroyed through oxidation.	3	3	2	Yes	Persulfate's anticipated effectiveness at treating benzene serves as a substitute or amendment for permanganate when treating benzene is the objective.
				Fenton's Reagent oxidation	Injection of a mixture of hydrogen peroxide and an iron-based catalist. The breakdown of hydrogen peroxide produces hydroxyl radical, which destroys contaminants through oxidation.	3	2	2	No	Safety concerns associated with the use of concentrated hydrogen peroxide are too great. This technology does not provide a significant residual treatment capacity, relative to potassium permanganate.
				Ozone Sparging	Sparging of ozonated air into saturated zone. Contaminants are destroyed through oxidation.	3	2	2	Yes	Pilot-scale treatability testing at Base indicates potential for full-scale effectiveness.
				Zero Valent Iron Oxidation	Construction of a reactive barrier wall using zero valent iron. VOCs in groundwater flowing through wall are oxidized.	1	2	1	No	The slowness and variability of groundwater flow at the Base are not compatible with this type of technology.
			Biological Treatment	Enhanced aerobic bioremediation	Injection of oxygen releasing substance into saturated zone stimulates activity of aerobic microbes. Applicable to contaminants capable of aerobic degradation.	3	3	2	Yes	Treatability testing at Base indicates potential for full-scale effectiveness.
				Enhanced anaerobic bioremediation	Injection of hydrogen releasing substance into saturated zone stimulates activity of anaerobic microbes. Applicable to contaminants capable of anaerobic degradation.	3	3	2	Yes	Testing at sites with similar conditions indicate potential effectiveness at treating TCE in groundwater.
			Physical Treatment	In-well Aeration	In-well aerators perform air stripping of groundwater within the well. Groundwater is not removed from the well, but is circulated through the aquifer.	3	2	2	Yes	Pilot-scale treatability testing at Base indicates potential for full-scale effectiveness.
				Air Sparging	Sparging of air into saturated zone volatilizes contaminants. Contaminants are transferred to vapor phase. This technology is usually combined with soil vapor extraction and off-gas treatment to control release of volatilized contaminants.	2	2	2	No	Requirement for soil vapor extraction wells and the expected duration of this technology results in reduced cost-effectiveness.
			Monitored Natural Attenuation	Intrinsic Bioremediation	Involves monitoring parameters used to quantify natural biodegradation of contaminants.	2	3	3	Yes	Natural attenuation has been shown to be slow, but active at the Base. Use of natural attenuation should be used only at lower concentration areas of contaminant plumes, or as a polishing method following active treatment.
		Groundwater Collection / Treatment / Discharge	Groundwater extraction	Groundwater extraction wells	Use of groundwater extraction wells to pump groundwater out of the aquifer for treatment and disposal.	2	2	1	No	Pump and treat technologies are not expected to be cost-effective relative to in situ treatment technologies.
			Physical Treatment	Air stripping	Countercurrent flow of air and water transfers VOCs from aqueous phase to vapor phase.	2	2	2	No	Pump and treat technologies are not expected to be cost-effective relative to in situ treatment technologies.

TABLE 4-7

Remedial Technology Screening - IRP Sites 2, 9, & 11
142nd FW, Portland ANGB, Portland, Oregon

Risk Drivers	Remedial Action Objectives	General Response Action	Remedial Technologies	Process Options	Description	Effectiveness[1]	Implementability[1]	Cost Effectiveness[1]	Retain?	Reason
			Off-site discharge	Discharge to POTW	Discharge of extracted and treated groundwater to the sanitary sewer for conveyance to the local POTW.	2	2	3	No	Pump and treat technologies are not expected to be cost-effective relative to in situ treatment technologies.
Trichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, and Vinyl Chloride in Groundwater (continued...)	Prevent the off-base migration of groundwater containing VOCs above concentrations corresponding to a Hazard Index greater than 1 or a lifetime excess cancer risk greater than 1x10-6 for individual carcinogens. (continued…)	**Institutional Controls**	Monitoring	Groundwater monitoring	Regular monitoring of groundwater to evaluate effectiveness in meeting remedial action objectives.	1	3	3	Yes	Groundwater monitoring will be required to evaluate an alternative's effectiveness at meeting remedial action objectives.
			Land / Water use restrictions	Deed Restrictions	Deed restrictions create legal restrictions on specific activities or uses of land or water by current and future land owners.	3	3	3	Yes	Deed restrictions are necessary to prevent unrestricted use of the Base.
				Zoning restrictions	Zoning restrictions prevent the alteration of the zoning classification of the Base.	3	3	3	Yes	Zoning restrictions are necessary to prevent alteration of the zoning classification of the Base.
				Access restrictions	Access restrictions prevent use of a facility by unauthorized personnel and for unauthorized purposes.	3	3	3	Yes	Access restrictions are necessary at the Base to prevent unrestricted access to potentially contaminated sites.
			Construction Controls	Health and safety training, equipment, and monitoring	Construction activities performed in areas containing potentially elevated levels of contaminants must be accompanied by appropriate health and safety monitoring. Construction workers must be appropriately trained and properly equipped.	3	3	3	Yes	Construction activities, excavation below the water table in particular, must be performed in a manner protective of worker health.
		Engineering Controls	Alternative water supplies	Public water system	This option specifies that the Base must tap into the public water system for future water supplies, rather than drilling supply wells on the Base.	3	3	3	Yes	Future water supplies for drinking or process use must not be obtained from Base groundwater.

NOTES:

VOC - Volatile organic compound

MCL - Maximum Contaminant Level

POTW - Publicly Owned Treatment Works

TCE - Trichloroethylene

1 - Effectiveness, implementability and cost effectiveness evaluated on a relative 1 to 3 scale, where 1 is low and 3 is high.

institutional control technologies were screened: monitoring, land- or water-use restrictions, and construction controls. Process options for monitoring consist solely of groundwater monitoring. Process options for land and water use restrictions include deed and zoning restrictions. Process options for construction controls consist of implementing health and safety procedures including training, equipment, and monitoring.

4.3.3 Engineering Controls

Engineering controls are designed to limit exposure to hazardous materials through the use of physical measures. The technologies and process options developed under the engineering control general response action are briefly described in Table 4-7. The engineering control technology that was screened involved alternative water supplies. Process options for alternative water supplies are limited to obtaining new water supplies from the public water system.

4.3.4 Groundwater Collection, Treatment, and Discharge

This general response action involves collection, treatment, and discharge of site groundwater. This action would be performed to reduce concentrations of contaminants in site groundwater to levels required to meet RAOs. Technologies screened under this general response included groundwater extraction, physical treatment, and off-site discharge. The process options for these technologies are groundwater extraction wells, air stripping, and discharge to a POTW. These process options are described briefly in Table 4-7.

4.3.5 In Situ Groundwater Treatment

This general response action involves in situ treatment of site groundwater to meet RAOs. Technologies screened for in situ treatment include chemical treatment, biological treatment, physical treatment, and action monitored natural attenuation (MNA). The process options screened for the chemical treatment technology included zero-valent iron oxidation, Fenton's reagent oxidation, permanganate oxidation, persulfate oxidation, and ozone sparging. The biological treatment process options include enhanced aerobic and anaerobic bioremediation. The physical treatment process options include in-well aeration and air sparging. The sole process option for MNA involves monitoring the intrinsic

bioremediation element of natural attenuation. Table 4-7 provides a brief description and evaluation of these process options.

4.4 Identification and Screening of Remedial Technologies

Following the development of general response actions (Section 4.3), potentially suitable remedial technologies have been identified and screened (i.e., retained or discarded from further consideration). In this process, a set of potentially applicable remedial technologies and process options are identified and generally evaluated with respect to implementability and effectiveness at the site considering the RAOs, the COCs, and the physical/chemical site characteristics.

Based on readily available information for technologies applicable to the types of contaminants and site characteristics at the Portland ANGB, assumptions can be made regarding the initial set of technologies and process options. While it is possible to list dozens of technologies and systematically eliminate a large majority of those due to an obvious lack of applicability, this FS is based on a reasonable subset of technologies specifically applicable to the RAOs, COCs, and site characteristics for the Portland ANGB.

This subset of treatment technologies described below represents: 1) a list of technologies that have been tested at the Base; 2) are proven technologies for the particular application; or 3) are innovative technologies expected to successfully meet remediation objectives. Technologies that are not expected to be implementable or effective at the base were not evaluated in this FS. Examples include technologies such as thermal processes, capping, hydraulic barriers, and numerous ex-situ treatment technologies. It is acknowledged that these technologies have been used as remediation options at sites impacted with similar contaminants. However, due to site restrictions, hydrogeologic constraints, or other factors at the Portland ANGB, these technologies are not expected to be applicable to groundwater treatment at the Portland ANGB.

The remedial technologies and process options identified for each general response action category are shown in Table 4-7. For each technology, at least one process option was selected. These process options are briefly described in Table 4-7. A relative screening is also presented in this table, which served as the basis for a recommendation to either retain or exclude a particular process option from further consideration. Comments also

provide a basis for the screening decision. The technologies identified for remediation of groundwater include:

- No action;
- Monitoring;
- Land / water use restrictions;
- Construction controls;
- Alternative water supplies;
- Groundwater extraction and treatment;
- In situ chemical treatment;
- In situ biological treatment;
- In situ physical treatment; and
- MNA.

These remedial technologies are described below under the appropriate general response actions.

4.4.1 No Action

Under the No Action general response action, No Action was the only technology / process option proposed. Under the No Action option, site modifications or groundwater monitoring would not be implemented to prevent or eliminate human health and environmental risks associated with VOCs in groundwater.

This alternative does not reduce or control potential future risk posed by groundwater contaminants at IRP Sites 2, 9, or 11. Because the alternative excludes remedial, institutional, and monitoring activities, it is considered easily implemented. There is no cost associated with this alternative.

Consideration of No Action as a technology is required in the FS process for comparison purposes; therefore this option is retained for further evaluation.

4.4.2 Institutional Controls

The Institutional Controls general response action includes consideration of three remedial technologies or processes: monitoring, land/water use restrictions, and construction controls. These technologies and the relative process options are described below.

4.4.2.1 Monitoring

Monitoring is an institutional control used to evaluate the presence of COCs at specific locations. This technology is used to evaluate the migration of VOCs at the Base to ensure compliance with the RAOs. The single monitoring process option used for this FS is groundwater monitoring. Specific existing and proposed monitoring wells screened in the various water-bearing zones underlying the Base will be monitored at regular intervals.

4.4.2.2 Land-/Water-Use Restrictions

The use of land- and water-use restrictions as a remedial technology/process involves placing restrictions on the current and future uses of the land and groundwater within the Base boundary. Several process options are available for this purpose, including deed restrictions, zoning restrictions, and access restrictions. Implementing these restrictions protects Base workers and future residents of the Base property, should a property transfer occur.

Deed restrictions create legal restrictions on specific activities or uses of land or water by current and future landowners. These restrictions are intended to prevent unauthorized development of the land and water.

Zoning restrictions are similar to deed restrictions, but prevent the future alteration of land use classification. This would prevent the Base from later being designated mixed use or residential use.

Access restrictions prevent unauthorized access or use of the Base. This would prevent unauthorized access to areas containing unacceptable levels of contaminants.

4.4.2.3 Construction Controls

The use of construction controls involves control and monitoring of construction crews at the Base to prevent unhealthy exposure to

contaminants by construction personnel. During excavation activities, construction workers may be exposed to shallow groundwater containing VOCs. The one process option for this technology involves implementing a site-specific health and safety program consisting of training construction workers, providing appropriate equipment, and monitoring work areas to prevent contaminant exposure during construction.

4.4.3 Engineering Controls

The engineering controls general response action includes consideration of one technology: alternative water supplies. This technology is described below.

4.4.3.1 Alternative Water Supplies

As an engineering control, alternative water supplies provide an option for obtaining additional water at the Base. To prevent the need to drill production wells on the Base, alternative water supplies must be available to supply additional water needs. Process options for alternative water supplies are limited to obtaining new water supplies from the public water system.

4.4.4 Groundwater Extraction and Treatment

Groundwater extraction and treatment is a general response action category that involves a number of traditional technologies and process options for groundwater remediation through contaminant migration control and contaminant mass removal methods. Based on the site characteristics and the nature and extent of contamination, only one technology is presented here for discussion. While several process options are available to extract groundwater from the subsurface (trenches, horizontal piping, vacuum systems, etc.) the process option identified and screened for the Portland IRP sites involves the use of groundwater pumping wells placed at specified intervals in the Shallow and Deep Zones. Dissolved contaminants in groundwater would be captured via pumping processes, extracted to the surface, physically or chemically treated, and disposed through one of several potential process options (e.g. disposal to an off-site POTW, re-infiltration, etc.).

While the dissolved contaminants present at IRP Sites 2, 9, and 11 are susceptible to capture and removal by pumping processes, the success of groundwater extraction technologies is highly dependant on the ability to

efficiently pump contaminated water from the water bearing zone. Often this success is measured in terms of the efficiency, or the mass of contaminant removed per unit cost to operate the system.

Lithologic data from the RI indicate that the thickness of the Shallow and Deep Zones vary significantly over short distances, and that significant silty intervals are present in both zones. Also, the silty intervals bracketing the zones are saturated. These conditions are problematic for successful remediation by groundwater extraction, as VOCs have a moderately strong affinity for sorption to fine-grained soil particles and because preferential flow pathways can be expected to develop in coarser-grained intervals within the Shallow and Deep Zones.

The low storativity values estimated from groundwater pumping test data also indicate that even relatively low groundwater pumping rates (i.e., 5 gallons per minute) would significantly lower the groundwater level in the overlying silt and, likely, the upper Shallow Zone. Much of the residual VOCs sorbed to soils would be stranded above the zone in which flushing would be achieved by groundwater flow toward the extraction wells. For these reasons, it is unlikely that groundwater extraction would cost-effectively remediate VOCs in groundwater.

This technology was not retained for evaluation in this FS because Shallow Zone hydrogeologic characteristics are not favorable for effective contaminant reduction through groundwater extraction. Since groundwater extraction technology has not been retained as a feasible remedial option, no further discussion of physical treatment or off-site discharge with regard to the groundwater extraction and treatment general response action is necessary.

4.4.5 In Situ Groundwater Treatment

Several remedial technologies were screened for the in situ groundwater treatment general response action. These technologies included chemical, biological, and physical treatment, as well as MNA. Descriptions are provided below.

4.4.5.1 Chemical Treatment

In situ chemical treatment of groundwater contaminants involves the chemical alteration or destruction of the contaminants through processes carried out in the saturated zone, without the need to extract groundwater. Generally, this technology involves the injection of a

reactive chemical or mixture of chemicals that reacts with the particular COCs.

The most common mechanism for the in situ chemical treatment of VOCs is oxidation. In situ oxidation is a relatively new technology that involves the placement of an oxidant into the subsurface to react with the COCs. In situ oxidation is applicable for various organic contaminants, including fuel-related hydrocarbons and VOCs, chlorinated VOCs, and PAHs. Because of the wide availability and observed success of oxidation technologies, other in situ chemical treatment mechanisms were not evaluated in this FS.

The potential benefits from in situ oxidation include in situ contaminant destruction, relatively low cost, reliability, simplicity, and rapid treatment. However, site-specific constraints must be considered. Efficient oxidation is dependent on the contact between oxidant and contaminant. Subsurface heterogeneities, preferential flow paths, and poor mixing in the subsurface may result in inefficient treatment. In addition, high levels of other oxidizable substances in the treated zone, such as other organic material and reduced-state metals, can significantly reduce the treatment efficiency and effectiveness.

The primary delivery mechanism for in situ chemical oxidation involves the placement, through fluid injection, gaseous sparging, or bulk soil replacement, of the oxidizing material in the zone of contaminated groundwater being treated. ODEQ is likely to consider all of these mechanisms to be regulated under their UIC program, thus requiring that injection locations be registered and the requirements described in Section 4.1.3.6 be met. The primary concern with in situ oxidation is the long-term degradation of water quality beyond the zone of treatment. All of the technologies described below have the potential to cause unacceptable water quality degradation under certain conditions.

Some potential water quality degradation mechanisms are common to all oxidation processes. For example, the altered oxidation state of the subsurface resulting from in situ oxidation can cause the migration of metals such as chromium that are more soluble and potentially more toxic in their oxidized state. However, dissolved chromium has not been regularly detected in groundwater during the RI at areas being considered for in situ oxidation and chromium concentrations detected in soil have been well below regulatory limits. Due to an induced oxidative state and slightly increased pH, some chromium may oxidize to the hexavalent form and become mobile. However, this transformation is highly dependent on the pH and redox potential of the groundwater (Zumdahl

1989). As groundwater flows away from the area immediately surrounding the treatment location, or as the oxidant is utilized, pH and redox values will decrease until they reach initial conditions. As pH and redox values equilibrate, the equilibrium concentration of hexavalent chromium will decrease significantly.

Other hazards or potential mechanisms for degradation of water quality specific to a particular oxidation technology will be addressed below.

The five chemical treatment process options that have been retained for evaluation in this FS are zero-valent iron oxidation, Fenton's Reagent oxidation, potassium permanganate oxidation, sodium persulfate oxidation, and ozone sparging, all of which rely on the oxidation of contaminants.

Zero-Valent Iron Oxidation

Metallic iron has been used successfully to oxidize subsurface contaminants, including VOCs. This technology is generally applied as a funnel and gate or standard reactive-barrier wall and relies on the horizontal flow of groundwater past a wall of iron in the form of granules or filings. The wall of iron is constructed by excavating the soil from the top of the water-bearing zone down to the confining layer and replacing the soil with iron and other wall components.

The advantage of an iron reactive barrier wall is that the treatment is performed passively, as groundwater flows past the wall. The only maintenance required would be replacement of the iron as its oxidation capacity reduces. The main disadvantage of this technology is that it relies on the horizontal flow of groundwater past the reactive wall.

The introduction of solid zero-valent iron has the potential to cause a degradation of water quality. As described previously, the oxidative state induced by the iron has the potential to cause dissolution of heavy metals such as hexavalent chromium. The potential for this to occur is based on the reactive life span of the iron. If the iron is allowed to remain in place and the oxidative effects are long lived, the original conditions of the water-bearing zone being treated may not readily equilibrate, allowing oxidized metals to migrate further than some other technologies. Also, small quantities of other metals such as chromium, arsenic, and cadmium may be present in the granular iron used for this technology. The contaminants introduced by this technology may impact water quality if present at high levels.

Because horizontal groundwater flow at the Portland ANGB is relatively slow and directionally variable, and the primary exposure scenario relies on the downward flow of groundwater and contaminants, this technology would not be expected to meet the RAOs. Therefore, zero-valent iron oxidation is not retained for further evaluation in this FS.

Fenton's Reagent Oxidation

The chemistry of Fenton's reagent involves the production of hydroxyl radicals through the catalysis of hydrogen peroxide. Ferrous iron (Fe^{2+}), either in native soil or delivered in the form of iron salts such as ferrous sulfate, catalyses the breakdown of hydrogen peroxide and the production of the hydroxyl radical.

The use of Fenton's reagent chemistry as an in situ remediation technology has been developed in several proprietary, commercially available forms. The hydrogen peroxide is mixed with iron salts and other proprietary components and delivered to the groundwater treatment zone in the same manner as other in situ fluid delivery technologies. This technology is applicable for a wide range of organic contaminants, including free phase contamination. The reactivity of the hydroxyl radical is very high and rapid.

There is a limit to the effectiveness of Fenton's Reagent by virtue of it's relative environmental instability . Hydroxyl radicals are relatively short lived. The hydroxyl radical will react with free radical scavengers / sinks and eventually be destroyed. Free radical sinks include metals, natural organics, or hydrogen peroxide itself. When the hydroxyl radicals react with hydrogen peroxide, heat and gas are produced. Because of the threat of rapid decomposition, 5-10 percent hydrogen peroxide solution is considered as a relatively safe range for the application of hydroxyl radicals. Above this concentration the decomposition of peroxide is sufficiently exothermic to produce steam, which if not captured in an engineered fashion can create safety hazard, as encountered in a few field-applications. The floodplain silts confining the Shallow Zone and Deep Zone water bearing units at the Base would prevent the gradual release of any steam or VOC vapors produced from this reaction. This could produce a buildup of high pressure, resulting in a dangerous sudden release through a preferential pathway, such as a monitoring well or utility vault. This potential scenario would be unacceptable at the Base, particularly at IRP Site 11 where aircraft and aircraft fuel are stored.

Because of the instability and potential heat and steam production due to the reaction of hydrogen peroxide, this technology was not retained for further evaluation in this FS.

Potassium Permanganate Oxidation

One of the most common oxidants available for use in the chemical treatment of organic contaminant is potassium permanganate. Potassium permanganate is delivered into the water-bearing zone as a water-based solution of approximately 1 to 5 percent potassium permanganate, by weight. Upon dissolution, permanganate ion causes the solution to turn purple, which provides an indicator mechanism. When the permanganate is reduced upon reaction with organic matter, it forms manganese dioxide, which is an insoluble brown precipitate under most conditions. In some cases, the manganese dioxide can cause a slight reduction of hydraulic conductivity in the treatment area (Environmental Security Technology Certification Program 1999). Permanganate is very effective at oxidizing most VOCs, and is capable of oxidizing petroleum hydrocarbons and related compounds. Permanganate has not been proven to be as effective at treating benzene as some other compounds.

Potassium permanganate has been proven to provide effective treatment of the chlorinated VOCs impacting groundwater at IRP Sites 2 and 11. Potassium permanganate is the least expensive oxidant available. A remediation system consisting of injecting potassium permanganate using direct-push injection points or permanent injection wells can be significantly less expensive than constructing a continuously operating remediation system. Permanganate injection can also be performed using horizontal wells. This will allow use of this technology when disturbing the ground surface above the treatment area is not feasible.

The COCs at IRP Site 9 require different considerations when choosing an appropriate oxidant. In particular, benzene has been shown to react slowly when treated with potassium permanganate.

A pilot test using injection of potassium permanganate was conducted at IRP Site 2. The purpose of the test was to evaluate the effectiveness of potassium permanganate at treating chlorinated VOCs in Shallow Zone groundwater and to determine a radius of influence for the injection. Significant reduction of chlorinated VOC concentrations in groundwater was observed. Over a 3-month monitoring period, VC was reduced by between 80 percent and greater than 90 percent at downgradient monitoring wells. Significant removal of cis-1,2-DCE and trans-1,2-DCE was also observed (up to 90 percent). Significant reduction of VC (greater

than 80 percent) and trans-1,2-DCE (approximately 75 percent) were observed at the furthest monitoring well, 12-feet downgradient of the injection location. Further details regarding the results of this pilot test are provided in the *Interim Remedial Action Construction Phase I Interim Report* (ERM 2001c).

Potassium permanganate reacts rapidly with the double bonds in chlorinated ethenes. Permanganate oxidizes the chlorinated ethenes to carbon dioxide and chloride ion. The end products of the reaction of potassium permanganate with CVOCs are carbon dioxide, water, hydroxide ion, potassium ion, manganese dioxide, and chloride ion. For example, the reaction of potassium permanganate with VC is represented in the following balanced stoichiometric equation:

$$10KMnO_4 + 3C_2H_3Cl \text{ ---> } 6CO_2 + 10MnO_2 + 10K^+ + 3Cl^- + 7OH^- + H_2O$$

The end products are not expected to cause a detrimental impact to groundwater quality. Unreacted permanganate can discolor groundwater (purple color). However, unreacted permanganate is not expected to reach a receptor, because the natural oxidant demand of native materials in the soil and groundwater will cause the permanganate to react with these materials before the permanganate can migrate a significant distance. This behavior was confirmed during the Phase I IRAC (ERM 2001c), where purple colored groundwater was not observed at a significant distance downgradient.

When the permanganate is reduced upon reaction with organic matter, it forms manganese dioxide, which is an insoluble brown precipitate under most conditions. However, precipitated manganese dioxide is not expected to inhibit groundwater flow at the low concentration of potassium permanganate that will be injected.

The raw material used for this technology is technical grade solid potassium permanganate. This is the same material used in drinking water and wastewater treatment, and its composition is regulated by the American Water Works Association. It is possible that the material used could contain trace amounts of impurities from the manufacturing process. These impurities could include toxic heavy metals such as chromium and mercury at very low concentrations. One manufacturer of potassium permanganate lists typical values of the three regulated impurities as less than 5 mg/kg cadmium, less than 20 mg/kg chromium, and less than 0.5 mg/kg mercury. At the concentration of potassium permanganate to be injected into the groundwater at IRP Site 11, the resulting concentrations of these three metals will be less than their

respective MCLs. As the injectate disperses and mixes with groundwater immediately surrounding the injection location, the resulting concentrations will decrease further. For verification, a sample of the raw material will be analyzed for impurities.

The long-term effects of potassium permanganate injection are expected to be favorable for subsequent natural attenuation of low concentrations of the remaining chlorinated VOCs in groundwater. Although the oxidative environment caused by the injected potassium permanganate may temporarily inhibit intrinsic biodegradation in the treatment area, intrinsic biological activity is expected to resume at pre-treatment levels soon after this oxidative environment attenuates.

The United States Department of Energy (DOE) evaluated the use of potassium permanganate in an Innovative Technology Summary Report titled *In Situ Chemical Oxidation using Potassium Permanganate* (DOE 1999). The DOE made several conclusions regarding the use of potassium permanganate and associated community and regulatory issues. Among the conclusions of the DOE evaluation were the following:

- The materials injected ($KMnO_4$) pose no hazard to the community or environment due to their low concentration after dispersal into the soil or groundwater;

- The community is not exposed to harmful by-products and there is no significant environmental impact as the overall reaction results in generation of carbon dioxide, MnO_2 solids, cations (e.g., potassium), and halides (when chlorinated solvents are present);

- In situ chemical oxidation using $KMnO_4$ does not produce VOCs (due to cleavage of the organic compound); and

- No unusual or significant safety concerns are associated with transport of equipment or other materials associated with this technology.

Persulfate Oxidation

Persulfates are strong but slow reacting oxidants. They exist as salts and are commonly available as the sodium, potassium or ammonium forms. Persulfates require activation in order to react, due to their high activation energy. They are typically thermally activated in industrial use.

Activation through the use of metal catalysis such as iron catalysis is also possible. The application of persulfates in groundwater remediation has not been tested extensively, but is expected to be effective based on

chemical reaction data (Brown 1999). The application of persulfate is similar to that for potassium permanganate. A water-based solution is injected through injection wells or direct-push injection points.

Persulfate is expected to be effective primarily for benzene and is not expected to effectively treat chlorinated VOCs. This option would be useful at IRP Site 9, for treating benzene.

Water quality issues for persulfates are similar to that of permanganate since the reaction mechanism is essentially the same. Persulfate is similarly a strong oxidant and will induce oxidative conditions in the water-bearing zone. However, as with the application of potassium permanganate, the persulfate is injected in low concentrations and the effects of this injection will not be seen at a great distance from the treatment zone. The use of persulfate oxidation is only proposed at IRP Site 9, where chlorinated hydrocarbons are not present. Because of this, production of more toxic VOCs is not a concern.

The composition of sodium persulfate and appropriate catalysts must be analyzed to prevent introduction of contaminants that may degrade water quality.

Ozone Sparging

The chemical process of in situ oxidation using ozonation is very similar to permanganate oxidation. Ozone is a strong oxidizer that readily breaks down organic compounds. Chemical oxidation by ozone is applicable for various organic contaminants including fuel-related hydrocarbons and VOCs, chlorinated VOCs, and PAHs.

Ozone sparging significantly differs from the other oxidation technologies, in that the implementation of ozone sparging is significantly more complex than that required for liquid injection. Ozone is delivered to the contaminated zone in the gas phase. Ozone is sparged using a typical air-sparging system, with the addition of between 1 and 5 percent ozone gas, by weight, to the air to be sparged. The gas mixture flows upward, oxidizing organic material in the process. Ozone can also be delivered through horizontal wells. Horizontal sparge wells installed near the bottom of the treatment zone can provide effective distribution of sparged gasses.

Ozone is the strongest oxidant available for remediation and is very effective at oxidizing most organic contaminants. However, because ozone is so reactive in nature, it does not provide the stable, residual

treatment capacity of some other oxidants, including permanganate. Also, ozone sparging is very susceptible to preferential flow, which can lead to pockets of untreated contaminants in heterogeneous soil.

Ozone sparging has been proven to provide efficient treatment of contaminants under the correct conditions. The COCs at IRP Sites 2, 9, and 11, chlorinated VOCs and benzene can all be treated effectively by ozone sparging.

The only water quality issues related to this technology is that related to the induced oxidative state of the groundwater as previously described. However, because ozone is so short-lived, the oxidative effects do not remain as long as other technologies. This is why an ozone system must be continuously operated. Oxidative effects of the ozone will not travel very far outside of the treatment zone. Native material in soil will quickly utilize any available ozone. There are no other byproducts of the oxidation reactions that would be expected to cause degradation of water quality at the Portland ANGB. However, there are safety concerns associated with ozone sparging. Ozone leaking from a system prior to being injected into the subsurface can pose a health and explosion hazard if in significant concentrations. Also, since this technology relies on the continuous injection of a gas into the subsurface, the use of pressure relief points in the subsurface must be considered, particularly in a confined water-bearing zone.

A pilot test using ozonation was conducted at IRP Site 2. The purpose of the test was to evaluate the effectiveness of ozone at treating chlorinated VOCs in Shallow Zone groundwater and to determine a radius of influence for the sparging system. Reduction of chlorinated VOC concentrations in groundwater was observed in nearby wells. Following 24-hours of ozone sparging, concentrations of cis-1,2-DCE and trans-1,2-DCE were reduced by approximately 75 percent. Contaminant removal was not observed in the furthest downgradient monitoring well at a distance of 12-feet. However, a significant change in wellhead VOC concentration was observed in this well during air sparging and ozone sparging, indicating some influence at this distance. Since contaminant reduction was not observed at this well, it must be concluded that the true radius of influence of the system is less than 12-feet.

The radius of influence for this system was estimated to be 8 to approximately 9-feet (ERM 2001c).

4.4.5.2 Biological Treatment

In situ biological treatment involves the injection of a material that stimulates the natural biological activity of the contaminated zone. The natural biological activity of a contaminated zone can become depressed after an extended period of contaminant degradation. Some sites are capable of extensive contaminant removal if depleted growth factors are replenished. Biological activity in a contaminated zone is frequently limited by the availability of a single growth factor, such as an electron acceptor or donor. Supplying this growth factor can often stimulate bacterial growth and biodegradation rates, and is generally used to treat saturated zone contamination.

The COCs at IRP Sites 2, 9, and 11 are expected to be treatable through biodegradation. A natural attenuation evaluation performed at these sites has shown that the contaminants appear to be degrading at a slow rate (ERM 2001a). This is an indication that the contaminant zone may be depleted of a growth factor as a result of past degradation of the contaminants.

Performing enhanced bioremediation involves injecting the material used to stimulate biological activity into the contaminated zone. Depending on the material used and the concentration of contaminants being treated, the material may require multiple injections to maintain optimal conditions. The two process options for this technology are enhanced aerobic bioremediation and enhanced anaerobic bioremediation.

Enhanced Aerobic Bioremediation

In scenarios where aerobic respiration is the preferred biological pathway for contaminant degradation, oxygen acts as the electron acceptor and is frequently depleted. Contaminants at IRP Sites 2, 9, and 11 that are capable of degradation by aerobic bioremediation include benzene, VC, cis-1,2-DCE, and trans-1,2-DCE. A lack of oxygen results in the use of other electron acceptors and biological pathways, which are much slower than aerobic respiration. Increasing the dissolved oxygen content in the contaminated zone ensures that aerobic respiration is the dominant biological pathway. This can be accomplished by injecting a substance that slowly releases oxygen.

One material that has been shown to be effective at treating a variety of contaminants is ORC®, produced by Regenesis. ORC® is a magnesium peroxide material that slowly releases elemental oxygen when hydrated.

A pilot test using ORC® was conducted at IRP Site 2. The purpose of the test was to evaluate the effectiveness of ORC® at reducing chlorinated VOCs in Shallow Zone groundwater and to determine a radius of influence for the injected ORC®. Significant reduction of chlorinated VOC concentrations in groundwater was observed, particularly cis-1,2-DCE and VC. Over the 3-month test duration, VC, cis-1,2-DCE, and trans-1,2-DCE were reduced by 70 to 75 percent at the furthest monitoring well, 12 feet downgradient of the injection location. Because the biological treatment of VOCs is slower than other methods, it can be assumed that the radius of influence for this test is at least 12 feet (ERM 2001c).

Enhanced Anaerobic Bioremediation

The correct oxidation-reduction state and the presence of electron donors are important factors in scenarios where reductive dechlorination is the preferred pathway for degradation of chlorinated hydrocarbons. TCE is the contaminant present at the Base that is most conducive to reductive dechlorination. Dissolved hydrogen added to source area groundwater can act as the required electron donor when others have been depleted, as well as serve to lower the redox potential to the appropriate range.

Several hydrogen sources exist that can be injected into the contaminated zone. Sodium lactate has been used successfully to enhance the biodegradation of chlorinated hydrocarbons, particularly tetrachloroethene and TCE. Sodium lactate is consumed quickly by subsurface bacteria, and as such repeated applications are required. Soybean oil has also been used as a hydrogen source for the treatment of chlorinated hydrocarbons. Soybean oil is expected to be an economical, long-lasting hydrogen source, but has not been extensively tested beyond the microcosm level. One widely used hydrogen source is a product called Hydrogen Release Compound, also produced by Regenesis. This product is a slow-releasing lactate product that has been proven effective at accelerating the biodegradation of some chlorinated hydrocarbons.

4.4.5.3 Physical Treatment

In situ physical treatment takes advantage of the physical properties of the COCs, such as volatility, and applies a technology based on this property. These technologies use processes that have traditionally been applied to extracted groundwater, such as counter-current air stripping. In-well aeration was the physical treatment process option retained for evaluation in this FS and is described below.

In-Well Aeration

In-well aeration, also known as in-well vapor stripping, is a technology for the in situ remediation of groundwater contaminated by VOCs (Ground-Water Remediation Technologies Analysis Center 1997). The in-well aeration process involves the creation of a groundwater circulation cell surrounding a well through which contaminated groundwater is cycled. The typical aeration well has hydraulically separated upper- and lower-screened intervals within the same water-bearing zone. The lower screen, through which groundwater enters, is placed at or near the bottom of the contaminated aquifer and the upper screen, through which groundwater is discharged, is installed across or above the water table.

The mechanism for aerating the groundwater varies with each particular technology. One mechanism involves sparging groundwater at the lower screen, volatilizing VOCs and causing the water to rise up an inner well casing. The water exits the top of the inner casing and flows out the upper screen in an outer well casing. Another method involves pumping the groundwater from the lower screen, air stripping the water in a small stripping tower built into the top of the well, and allowing the water to flow out the upper well screen. In both methods the discharged groundwater flows downward, eventually reaching the lower portion of the aquifer, where it is cycled back through the well into the lower screened interval.

Contaminated vapors can be drawn off above ground, or injected into the vadose zone for treatment by natural biodegradation. Vapors extracted from the well exhibiting sufficiently low VOC concentration can be discharged directly to the atmosphere. Those extracted vapor exhibiting elevated VOC concentrations, would be discharged through a catalytic oxidizer, or through activated carbon beds.

Discharging vapors through a catalytic oxidizer involves heating the vapor stream using a natural gas burner, and passing the heated vapor stream across a platinum-based catalyst, which oxidizes the VOCs into carbon dioxide, water, and in the case of chlorinated VOCs, hydrochloric acid. A scrubber can be used to remove the hydrochloric acid from the air stream if required. The air stream is then discharged to the atmosphere through a stack.

Discharging vapors through an activated carbon vessel also removes VOCs from the air stream. This is accomplished through an adsorption process. The activated carbon eventually becomes saturated and must be transported off-site for regeneration or disposal.

The effectiveness of in-well aeration is based on the ability of the contaminants to be volatilized, and the flow characteristics of the aquifer. This option is best suited for VOCs in environments that allow significant horizontal and vertical groundwater flow. The VOCs at IRP Sites 2, 9, and 11 are all readily volatilized. The Shallow Zone at these sites and the Deep Zone at IRP Sites 2 and 11 are fairly homogenous fine sand, and should be conducive to groundwater flow to the aeration well. However, this process relies on the flow of groundwater out of the upper screen at the top of the water-bearing zone being treated. Aeration wells installed in the Deep Zone would have the lower screen set just above the bottom of the Deep Zone and the upper screen set just below the floodplain silts separating the Deep Zone from the Shallow Zone. However, wells installed to treat the Shallow Zone would require that the upper screen be set in the floodplain silts above the Shallow Zone due to the shallow nature of groundwater in the Shallow Zone. The restriction of flow out of the upper screen in Shallow Zone aeration wells may limit the overall effectiveness of this alternative.

During the RI for the Portland ANGB (ERM 2001a), a treatability test was performed using in-well aeration at IRP Site 2. At the completion of this test a full 100 percent removal of all VOCs (including VC; cis- and trans-1,2-dichloroethene; and TCE) from treated groundwater was achieved at a moderate air flow. This system differed from most in-well aeration systems in that the groundwater was aerated within the well, and was pumped out for disposal rather than circulated back into the aquifer. Although this system required disposal of treated groundwater, the contaminant levels resulting from the treatment were suitable for discharge to the sanitary sewer. No indication of a radius of influence of the aeration system was observed.

4.4.5.4 Monitored Natural Attenuation

The use of MNA to achieve RAOs relies on biological, physical, and chemical processes that are naturally occurring in the environment. These processes may include biodegradation, dispersion and dilution, sorption, and volatilization. Monitoring and documenting the intrinsic bioremediation element of natural attenuation is the major focus of this alternative. MNA involves no active measures to contain or treat groundwater contaminated with VOCs.

Strategically located new monitoring wells are combined with current monitoring wells to accurately monitor the extent of each VOC plume. The groundwater would also be monitored for intrinsic bioremediation

parameters such as nitrate, sulfate, dissolved iron, methane, ethene, carbon dioxide, alkalinity, dissolved oxygen, and redox potential. These parameters measured with VOC concentrations will allow calculation of removal rates.

MNA is considered a treatment technology, as described in *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites,* USEPA, OSWER Directive 9200.4-17, November 1997 (USEPA 1997).

The MNA alternative is most appropriate at sites where the following conditions exist:

1. The source of contamination to the groundwater has been removed.

2. The quantity of contaminants remaining in the environment is minor, limited in extent, and not migrating.

3. The risk to human health, safety, and the environment is insignificant.

The VOCs that make up the COCs at IRP Sites 2, 9, and 11 are all capable of natural biodegradation. However, the most widespread VOC, VC, degrades naturally at a very slow rate, and has a tendency to accumulate since it is a degradation product of the higher-order chlorinated VOCs, primarily TCE and cis-1,2-DCE, which tend to naturally degrade more quickly.

4.5 Development of Remedial Alternatives

Several of the remedial technology process options described above have been tested at the Portland ANGB, and are known to be effective at treating VOCs in groundwater. The selected process options were developed into remedial alternatives, which address the RAOs developed for the Portland ANGB. Six alternatives were developed using an appropriate combination of process options.

4.5.1 Remedial Alternative 1: No Action

This remedial alternative implements the no action process option. As discussed, the FS process requires consideration of the No Action Alternative. Under this alternative, no site modifications or groundwater monitoring would be implemented, and the engineering and institutional controls previously described would not be used.

4.5.2 Process Options Common to Alternatives 2, 3, 4, 5, and 6

Process options described under the institutional or engineering controls general response actions are included in the remaining alternatives. These process options provide protection from existing or future remaining risks at the Base. These components will be the same for each alternative, and are therefore described separately, rather than repeatedly for each alternative. The costs associated with these common tasks are not included in the cost estimates for each remedial alternative because they are common to all the alternatives (except Alternative 1) and are not specific to each IRP site. The No Action remedial alternative is the only alternative that does not include these additional components. The common tasks for each of the remaining remedial alternatives include:

- Monitoring VOCs in Shallow Zone, Deep Zone, and CRSA beyond each of the boundaries of IRP Sites 2, 9, and 11. Monitoring would be conducted annually for approximately 30 years.

- Implement Base-wide deed restrictions that limit the development of Base groundwater as a water supply.

- Implement zoning restrictions encompassing the current Base footprint that restricts rezoning of the property for uses other than industrial.

- Implement Base-wide access restrictions that prevent use of the facility by unauthorized personnel and/or for unauthorized purposes.

- Implement a Base-wide health and safety program requiring appropriate training, equipment, and monitoring during activities that put Base workers in contact with groundwater.

- Utilize alternative water supplies, such as the existing public water supply, when additional water capacity is required, rather than obtaining this capacity through extraction of groundwater at the Base.

4.5.3 Remedial Alternative 2: Monitored Natural Attenuation

Alternative 2 involves the implementation of MNA as the primary treatment method. MNA would be implemented across the full extent of each site. The duration of this alternative is expected to be approximately 30 years. This alternative also involves the implementation of the common elements described in Section 4.5.2.

Implementation of Alternative 2 at IRP Site 2 would involve:

- Performing a brief direct-push investigation to delineate the lateral extent of VOCs in Deep Zone groundwater. The concentrations of VOCs in the Deep Zone are expected to fluctuate significantly prior to the future implementation of a Deep Zone remedial action. This investigation would consist of collecting approximately 30 direct-push groundwater samples immediately prior to implementation of the remedial action.

- Installing four Shallow Zone monitoring wells, two Deep Zone monitoring wells, and two CRSA monitoring wells within, and surrounding, the hot spot of contamination.

- Monitoring the new and existing monitoring wells quarterly for 1 year and annually for 30 years. Twenty-six wells will be monitored for VOC concentrations. Additionally, 10 of these wells will be monitored for MNA parameters.

Implementation of Alternative 2 at IRP Site 9 would involve:

- Installing seven Shallow Zone monitoring wells within, and surrounding, the hot spot of contamination.

- Monitoring the new and existing monitoring wells quarterly for 1 year and annually for 30 years. Ten wells will be monitored for VOC concentrations. Additionally, three of these wells will be monitored for MNA parameters.

Implementation of Alternative 2 at IRP Site 11 would involve:

- Performing a direct-push investigation immediately prior to remedial action implementation to determine the current extent of VOCs in Deep Zone groundwater similar to that described above for IRP Site 2.

- Installing four Shallow Zone monitoring wells, two Deep Zone monitoring wells, and three CRSA monitoring wells within, and surrounding, the hot spot of contamination.

- Monitoring the new and existing monitoring wells quarterly for 1 year and annually for 30 years. Twenty-three wells will be monitored for VOC concentrations. Additionally, 10 of these wells will be monitored for MNA parameters.

4.5.4 Remedial Alternative 3: In Situ Oxidation-Potassium Permanganate/ Persulfate Injection with Monitored Natural Attenuation

Alternative 3 utilizes a combination of the treatment process options discussed in Section 4.4. The primary contaminant treatment within the hot spot will be performed through in situ oxidation. Because of the similarity in application technique, potassium permanganate and persulfate are interchanged in this alternative. Potassium permanganate will be used to treat chlorinated VOCs and persulfate will be used to treat benzene. MNA will be used to measure the natural degradation of low concentration contaminants immediately outside of the hot spot. The active treatment duration for this alternative is expected to be 2 years, followed by 5 years of monitoring. This treatment duration is an approximation of the expected duration required to meet the RAOs and is based on similar cases. Injection spacing used for this alternative is based on the results of the permanganate injection pilot test conducted at IRP Site 2 (ERM 2001c). This alternative also includes implementation of the common elements discussed in Section 4.5.2.

Implementation of Alternative 3 at IRP Site 2 would involve:

- Performing a direct-push investigation immediately prior to remedial action implementation to determine the current extent of VOCs in Deep Zone groundwater.

- Installing four Shallow Zone monitoring wells, two Deep Zone monitoring wells, and two CRSA monitoring wells within, and surrounding, the hot spot of contamination;

- Injecting 35 pounds of potassium permanganate as a 2 percent water-based solution in each of numerous direct-push injection locations performed at a specific frequency. This is the expected limit of injection at a single location, per event. The locations and frequency consist of:

  – Approximately 250 injections at a 25-foot spacing within the primary treatment area injected from the bottom of the Shallow Zone up to the water table. These injections will be performed every 6 months for 2 years, resulting in four applications total. The locations will be adjusted for each application, resulting in a net spacing of approximately 12 feet.

  – Approximately 60 injections at a 25-foot spacing in the area outside of the primary treatment area but within the hot spot, injected from

the bottom of the Shallow Zone up to the water table. These injections will be performed every year for 2 years, or two injections total. The locations will be adjusted for each application, resulting in a net spacing of approximately 18 feet.

- Approximately 80 injections at a 25-foot spacing within the southeast portion of the hot spot, near the source area, injected from the bottom of the Deep Zone up to the top of the Deep Zone. These injections will be performed every 6 months for 2 years, resulting in four applications total. The locations will be adjusted for each application, resulting in a net spacing of approximately 12 feet.

- Monitoring the new and existing monitoring wells quarterly for 2 years and annually for 5 years. Twenty-six wells will be monitored for VOC concentrations. Additionally, 10 of these wells will be monitored for MNA parameters and potential byproducts such as chromium, cadmium, and mercury.

Implementation of Alternative 3 at IRP Site 9 would involve:

- Installing seven Shallow Zone monitoring wells within, and surrounding, the hot spot of contamination;

- Injecting iron-catalyzed sodium persulfate at approximately 50 locations on a 25-foot spacing. Approximately 95 pounds of persulfate as a 3 to 5 percent water-based solution will be injected from the bottom of the Shallow Zone up to the water table. These injections will be performed every 6 months for 2 years, resulting in four applications total. The locations will be adjusted for each application, resulting in a net spacing of approximately 12 feet.

- Monitoring the new and existing monitoring wells quarterly for 2 years and annually for 5 years. Ten wells will be monitored for VOC concentrations. Additionally, three of these wells will be monitored for MNA parameters and potential byproducts such as chromium, cadmium, and mercury.

Implementation of Alternative 3 at IRP Site 11 would involve:

- Performing a direct-push investigation immediately prior to remedial action implementation to determine the current extent of VOCs in Deep Zone groundwater.

- Installing four Shallow Zone monitoring wells, two Deep Zone monitoring wells, and three CRSA monitoring wells within, and surrounding, the hot spot of contamination;

- Installing eight Shallow Zone horizontal injection wells and four Deep Zone horizontal injection wells within the hot spot of contamination. These wells will be placed at the approximate vertical mid-points of the Shallow Zone and Deep Zone. Horizontal injection wells were selected over vertical wells or direct-push drilling methods to prevent disturbance of flight operations or the concrete flight apron.

- Injecting potassium permanganate as a 2 percent water-based solution in each of the injection wells. Approximately 12 gallons of permanganate solution will be injected for each foot of screen length at each well. This volume meets the oxidant stoichiometric demand for the contaminants. These injections will be performed every 6 months for 2 years, resulting in a total of four applications.

- Monitoring the new and existing monitoring wells quarterly for 2 years and annually for 5 years. Twenty-three wells will be monitored for VOC concentrations. Additionally, 10 of these wells will be monitored for MNA parameters and potential byproducts such as chromium, cadmium, and mercury.

4.5.5 Remedial Alternative 4: In Situ Oxidation-Ozonation with Monitored Natural Attenuation

Alternative 4 also utilizes a combination of the treatment process options discussed in Section 4.4. The primary contaminant treatment within the hot spot will be performed through in situ oxidation. Ozone sparging will be used as the method of oxidation. Groundwater in the Shallow Zone and Deep Zone at IRP Sites 2 and 11 and in the Shallow Zone only at IRP Site 9 will be treated by ozone sparging. SVE will be used to collect excess ozone and any volatilized VOCs in the vadose zone and the top of the Deep Zone. MNA will be used to measure the natural degradation of low concentration contaminants immediately outside on the fringe of the hot spot. The active treatment duration for this alternative is expected to be 3 years, followed by 5 years of monitoring. This treatment duration is an approximation of the expected duration required to meet the RAOs and is based on similar cases and information from system vendors. Injection spacing used for this alternative is also based on similar cases and information from system vendors. This alternative also includes implementation of the common elements discussed in Section 4.5.2.

Implementation of Alternative 4 at IRP Site 2 would involve:

- Performing a direct-push investigation immediately prior to remedial action implementation to determine the current extent of VOCs in Deep Zone groundwater.
- Installing four Shallow Zone monitoring wells, two Deep Zone monitoring wells, and two CRSA monitoring wells within, and surrounding, the hot spot of contamination;
- Installing 32 Shallow Zone sparging wells and 12 Deep Zone sparging wells within the hot spot of contamination;
- Installing SVE equipment and piping;
- Installing below-grade piping from each well to a common system location. Piping installation will involve trenching, laying pipe, and backfilling;
- Operating the ozone sparging system for 3 years;
- Monitoring the new and existing monitoring wells quarterly for 3 years and annually for 5 years. Twenty-six wells will be monitored for VOC concentrations. Additionally, 10 of these wells will be monitored for MNA parameters; and
- Quarterly air sampling of each SVE system's air effluent to assess the system performance.

Implementation of Alternative 4 at IRP Site 9 would involve:

- Installing seven Shallow Zone monitoring wells within, and surrounding, the hot spot of contamination;
- Installing 16 Shallow Zone sparging wells within the hot spot of contamination;
- Installing SVE equipment and piping;
- Installing below-grade piping from each well to a common system location. Piping installation will involve trenching, laying pipe, and backfilling;
- Operating the ozone sparging system for 3 years;

- Monitoring the new and existing monitoring wells quarterly for 3 years and annually for 5 years. Ten wells will be monitored for VOC concentrations. Additionally, three of these wells will be monitored for MNA parameters; and

- Quarterly air sampling of each SVE system's air effluent to assess the system performance.

Implementation of Alternative 4 at IRP Site 11 would involve:

- Performing a direct-push investigation immediately prior to remedial action implementation to determine the current extent of VOCs in Deep Zone groundwater.

- Installing four Shallow Zone monitoring wells, two Deep Zone monitoring wells, and three CRSA monitoring wells within, and surrounding, the hot spot of contamination;

- Installing eight Shallow Zone horizontal ozone sparge wells and four Deep Zone horizontal ozone sparge wells within the hot spot of contamination. These wells will be placed at approximately the bottom of the Shallow Zone and Deep Zone. Horizontal injection wells were selected over vertical wells or direct-push drilling methods to prevent disturbance of flight operations or the concrete flight apron.

- Installing eight horizontal vapor extraction wells above the Shallow Zone and four horizontal vapor extraction wells at the top of the Deep Zone directly above the respective ozone sparging wells. The Deep Zone vapor extraction wells would be under saturated conditions and would serve to relieve built up gasses resulting from sparging rather than as traditional SVE wells.

- Installing SVE equipment and piping.

- Installing below-grade piping from each well to a common system location. Piping installation will involve concrete removal, trenching, laying pipe, backfilling, and resurfacing.

- Operating the ozone sparging system for 3 years;

- Monitoring the new and existing monitoring wells quarterly for 3 years and annually for 5 years. Twenty-three wells will be monitored for VOC concentrations. Additionally, 10 of these wells will be monitored for MNA parameters; and

- Quarterly air sampling of each system's air effluent to assess the system performance.

4.5.6 Remedial Alternative 5: Enhanced Bioremediation with Monitored Natural Attenuation

This alternative combines the use of enhanced aerobic and anaerobic bioremediation and MNA to treat the COCs. Areas impacted by TCE, such as the source area of IRP Site 2, will be treated using a hydrogen releasing material. All other areas will be treated using an oxygen releasing material.

MNA will be used to measure the natural degradation of low concentration contaminants immediately outside on the fringe of the hot spot. The active treatment duration for this alternative is expected to be 2 years, followed by 5 years of monitoring. This treatment duration is an approximation of the expected duration required to meet the RAOs and is based on similar cases and vendor information. Injection spacing used for this alternative is based on the results of the enhanced aerobic bioremediation pilot test conducted at IRP Site 2 (ERM 2001c). This alternative also includes implementation of the common elements discussed in Section 4.5.2.

Implementation of Alternative 5 at IRP Site 2 would involve:

- Performing a direct-push investigation immediately prior to remedial action implementation to determine the current extent of VOCs in Deep Zone groundwater.

- Installing four Shallow Zone monitoring wells, two Deep Zone monitoring wells, and two CRSA monitoring wells within, and surrounding, the hot spot of contamination;

- Injecting 30 pounds of a hydrogen releasing material in approximately 10 Shallow Zone direct-push injection locations at an initial spacing of 25 feet. The injection amount may vary, based on the conductivity of the Shallow Zone soils. The material will be injected from the bottom of the Shallow Zone up to the water table. The material will be injected every 6 months for approximately 2 years, resulting in four applications total. The locations will be adjusted for each application, resulting in a net spacing of approximately 12 feet;

- Injecting 30 pounds of oxygen releasing material in each of numerous direct-push injection locations performed at a specific frequency. The locations and frequency consist of:

  – Approximately 250 injections at a 25-foot spacing within the primary treatment area injected from the bottom of the Shallow Zone up to the water table. These injections will be performed every 6 months for 2 years, resulting in four applications total. The locations will be adjusted for each application, resulting in a net spacing of approximately 12 feet.

  – Approximately 60 injections at a 25-foot spacing in the area outside of the primary treatment area but within the hot spot, injected from the bottom of the Shallow Zone up to the water table. These injections will be performed every year for 2 years, or two injections total. The locations will be adjusted for each application, resulting in a net spacing of approximately 18 feet.

  – Approximately 80 injections at a 25-foot spacing within the southeast portion of the hot spot, near the source area, injected from the bottom of the Deep Zone up to the top of the Deep Zone. These injections will be performed every 6 months for 2 years, resulting in four applications total. The locations will be adjusted for each application, resulting in a net spacing of approximately 12 feet.

- Monitoring the new and existing monitoring wells quarterly for 2 years and annually for 5 years. Twenty-six wells will be monitored for VOC concentrations. Additionally, 10 of these wells will be monitored for MNA parameters.

Implementation of Alternative 5 at IRP Site 9 would involve:

- Installing seven Shallow Zone monitoring wells within, and surrounding, the hot spot of contamination;

- Injecting 30 pounds of an oxygen releasing material in approximately 50 Shallow Zone direct-push injection locations at an initial spacing of 25 feet. The material will be injected from the bottom of the Shallow Zone up to the water table. The material will be injected every 6 months for approximately 2 years, resulting in four applications total. The locations will be adjusted for each application, resulting in a net spacing of approximately 12 feet; and

- Monitoring the new and existing monitoring wells quarterly for 2 years and annually for 5 years. Ten wells will be monitored for VOC concentrations. Additionally, three of these wells will be monitored for MNA parameters.

Implementation of Alternative 5 at IRP Site 11 would involve:

- Performing a direct-push investigation immediately prior to remedial action implementation to determine the current extent of VOCs in Deep Zone groundwater.

- Installing four Shallow Zone monitoring wells, two Deep Zone monitoring wells, and three CRSA monitoring wells within, and surrounding, the hot spot of contamination.

- Injecting 30 pounds of oxygen releasing material in each of numerous direct-push injection locations performed at a specific frequency. The locations and frequency consist of:

  - Approximately 270 injections at a 25-foot spacing within the primary treatment area injected from the bottom of the Shallow Zone up to the water table. These injections will be performed every 6 months for 2 years, resulting in four applications total. The locations will be adjusted for each application, resulting in a net spacing of approximately 12 feet.

  - Approximately 70 injections at a 25-foot spacing in the area outside of the primary treatment area but within the hot spot, injected from the bottom of the Shallow Zone up to the water table. These injections will be performed every year for 2 years, or two injections total. The locations will be adjusted for each application, resulting in a net spacing of approximately 18 feet.

  - Approximately 90 injections at a 25-foot spacing within the southeast portion of the hot spot, near the source area, injected from the bottom of the Deep Zone up to the top of the Deep Zone. These injections will be performed every 6 months for 2 years, resulting in four applications total. The locations will be adjusted for each application, resulting in a net spacing of approximately 12 feet.

- Coring and repair of the flight apron concrete in accordance with ANG specifications will be required at approximately 75 percent of the direct-push injection locations.

- Monitoring the new and existing monitoring wells quarterly for 2 years and annually for 5 years. Twenty-three wells will be monitored for VOC concentrations. Additionally, 10 of these wells will be monitored for MNA parameters.

4.5.7 Remedial Alternative 6: In-Well Aeration with Monitored Natural Attenuation

Alternative 6 also utilizes a combination of the treatment process options discussed in Section 4.4. The primary contaminant treatment within the hot spot will be performed through in-well aeration. Groundwater in the Shallow Zone and Deep Zone at IRP Sites 2 and 11 and in the Shallow Zone only at IRP Site 9 will be treated. Effluent air will be treated using granular activated carbon. MNA will be used to measure the natural degradation of low concentration contaminants immediately outside of the hot spot. The active treatment duration for this alternative is expected to be 3 years, followed by 5 years of monitoring. This treatment duration is an approximation of the expected duration required to meet the RAOs and is based on information from vendors. Injection spacing used for this alternative is also based on vendor information. This alternative also includes implementation of the common elements discussed in Section 4.5.2.

Implementation of Alternative 6 at IRP Site 2 would involve:

- Performing a direct-push investigation immediately prior to remedial action implementation to determine the current extent of VOCs in Deep Zone groundwater.

- Installing four Shallow Zone monitoring wells, two Deep Zone monitoring wells, and two CRSA monitoring wells within, and surrounding, the hot spot of contamination;

- Installing 21 Shallow Zone aeration wells and 5 Deep Zone aeration wells within the hot spot of contamination;

- Installing below-grade piping from each aeration well to a common system location. Piping installation will involve trenching, laying pipe, and backfilling;

- Operating the system for 3 years;

- Monitoring the new and existing monitoring wells quarterly for 3 years and annually for 5 years. Twenty-six wells will be monitored

for VOC concentrations. Additionally, 10 of these wells will be monitored for MNA parameters; and

- Quarterly air sampling of each system's air effluent to assess the system performance.

Implementation of Alternative 6 at IRP Site 9 would involve:

- Installing seven Shallow Zone monitoring wells within, and surrounding, the hot spot of contamination;

- Installing four Shallow Zone aeration wells within the hot spot of contamination;

- Installing below-grade piping from each well to a common system location. Piping installation will involve trenching, laying pipe, and backfilling;

- Operating the system for 3 years;

- Monitoring the new and existing monitoring wells quarterly for 3 years and annually for 5 years. Ten wells will be monitored for VOC concentrations. Additionally, three of these wells will be monitored for MNA parameters; and

- Quarterly air sampling of each system's air effluent to assess the system performance.

Implementation of Alternative 6 at IRP Site 11 would involve:

- Performing a direct-push investigation immediately prior to remedial action implementation to determine the current extent of VOCs in Deep Zone groundwater.

- Installing four Shallow Zone monitoring wells, two Deep Zone monitoring wells, and three CRSA monitoring wells within, and surrounding, the hot spot of contamination;

- Installing 26 Shallow Zone aeration wells and seven Deep Zone aeration wells within the hot spot of contamination. For cost estimating purposes, it is assumed that 75 percent of the wells will be installed within the flight apron concrete at IRP Site 11, and will require concrete coring and completion in accordance with ANG specifications;

- Installing below-grade piping from each well to a common system location. Piping installation will involve concrete removal, trenching, laying pipe, backfilling, and resurfacing;

- Operating the system for 3 years;

- Monitoring the new and existing monitoring wells quarterly for 3 years and annually for 5 years. Twenty-three wells will be monitored for VOC concentrations. Additionally, 10 of these wells will be monitored for MNA parameters; and

- Quarterly air sampling of each system's air effluent to assess the system performance.

SECTION 5.0

DETAILED ANALYSIS OF ALTERNATIVES

This section presents a detailed evaluation of RA alternatives. First, the evaluation criteria set forth in *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (USEPA 1988) are described. Subsequently, as outlined in the Oregon Guidance for Conducting Feasibility Studies (ODEQ 1998b), elements used to compare RA alternatives are presented. Next, the remedial alternatives described in Section 4.0 for IRP Sites 2, 9, and 11 are evaluated with respect to the criteria. Finally, the alternatives for each of the sites are collectively evaluated through a comparative analysis based on the criteria. Table 5-1 summarizes the results of this evaluation and the comparative analysis of the remedial alternatives for IRP Sites 2, 9, and 11.

5.1 Assessment Criteria

The following sections describe the elements of the nine criteria used for detailed analysis of remedial alternatives.

5.1.1 Overall Protection of Human Health and the Environment

This evaluation criterion provides a final check to assess whether each alternative provides adequate protection of human health and the environment. The overall assessment of protection considers the assessments conducted under other evaluation criteria, particularly long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs. This evaluation also allows for consideration of whether an alternative poses any unacceptable short-term or crossmedia impacts.

Oregon's Environmental Cleanup Law uses a Residual Risk Assessment (RRA) to demonstrate protectiveness. For RAs consisting solely of treatment, the RRA provides only the quantitative assessment of the risk from treatment residuals or untreated wastes remaining at the site.

TABLE 5-1

Alternatives Evaluation Summary Table
142nd FW, Portland ANGB, Portland, Oregon

IRP Site	Remedial Alternative	Evaluation Criteria									Comparative Ranking
		Overall Protection of Human Health and Environment	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of TMV Through Treatment	Short-Term Effectiveness	Implementability	Cost	Cost Reasonableness	Treatment of Hot Spots	
2	1. No Action	Low	Low	Low	Low	Low	High	$0	Low	Low	6
	2. Monitored Natural Attenuation (MNA)	Low	Low	Low	Low	Low	High	$717,000	Low	Low	5
	3. In-situ Oxidation-Potassium Permanganate Injection w/ MNA	High	High	High	High	Medium	High	$2,301,000	High	High	1
	4. In-Situ Oxidation – Ozonation w/ MNA	High	High	High	High	Medium	Medium	$3,501,000	Medium	High	2
	5. Enhanced Bioremediation w/ MNA	Medium	Medium	Medium	Medium	Medium	High	$2,780,000	Medium	Medium	4
	6. In-Well Aeration w/ MNA	Medium	High	High	High	Medium	Medium	$3,721,000	Medium	High	3
9	1. No Action	Low	Low	Low	Low	Low	High	$0	Low	Low	6
	2. Monitored Natural Attenuation (MNA)	Low	Low	Low	Low	Low	High	$292,000	Low	Low	5
	3. In-situ Oxidation-Sodium Persulfate Injection w/ MNA	High	High	High	High	Medium	High	$573,000	High	High	1
	4. In-Situ Oxidation – Ozonation w/ MNA	High	High	High	High	Medium	Medium	$1,198,000	Medium	High	3
	5. Enhanced Bioremediation w/ MNA	High	High	High	High	Medium	High	$596,000	High	High	2
	6. In-Well Aeration w/ MNA	High	High	High	High	Medium	Medium	$1,075,000	Medium	High	4
11	1. No Action	Low	Low	Low	Low	Low	High	$0	Low	Low	6
	2. Monitored Natural Attenuation (MNA)	Low	Low	Low	Low	Low	High	$763,000	Low	Low	5
	3. In-situ Oxidation-Potassium Permanganate Injection w/ MNA	High	High	High	High	Medium	Medium	$2,607,000	High	High	1
	4. In-Situ Oxidation – Ozonation w/ MNA	High	High	High	High	Medium	Medium	$4,409,000	Medium	High	2
	5. Enhanced Bioremediation w/ MNA	Medium	Medium	Medium	Medium	Medium	Low	$4,309,000	Medium	Medium	4
	6. In-Well Aeration w/ MNA	Medium	High	High	High	Medium	Low	$5,554,000	Medium	High	3

NOTES:
The assessment of the degree to which an alternative meets the requirements of the individual balancing factors is presented as low, medium, or high.
The six remedial alternatives for each site are then ranked from 1 (highest) to 6 (lowest) based on the overall results of this assessment.

5.1.2 Compliance with ARARs

This evaluation criterion is used to determine whether each alternative will meet all of its identified federal and state ARARs.

5.1.3 Long-Term Effectiveness and Permanence

The evaluation of a remedial alternative relative to its long-term effectiveness and permanence is made considering the risks remaining at the site after the remedial goals have been met. The assessment of long-term effectiveness is made considering the following four major factors:

- Magnitude of residual risk to human and environmental receptors remaining from untreated waste or treatment residues at the completion of remedial activities;
- Assessment of the type, degree, and adequacy of long-term management required for untreated waste or treatment residues remaining at the site;
- Assessment of the long-term reliability of engineering and/or institutional controls to provide continued protection from untreated waste or treatment residues; and
- Potential need for replacement of the remedy, and the continuing need for repairs to maintain the performance of the remedy.

Some of the criteria of Oregon's Environmental Cleanup Law Effectiveness Balancing Factor, and all of the criteria developed for the Long-Term Reliability Balancing Factor, correspond to the criteria described above.

5.1.4 Reduction of Toxicity, Mobility, or Volume through Treatment

This evaluation criterion addresses the degree to which RAs employ treatment technologies that permanently and significantly reduce the toxicity, mobility, or volume (TMV) of the hazardous substance(s). The evaluation considers the following factors:

- Treatment processes;
- Amount of hazardous materials that will be treated;

- Degree of expected reduction in TMV, including how the principal threat is addressed through treatment;
- Degree to which the treatment will be irreversible; and
- Type and quantity of treatment residuals that will remain following treatment.

Some of the criteria of the Effectiveness Balancing Factor developed in Oregon's Environmental Cleanup Law correspond to the above USEPA criteria.

5.1.5 Short-Term Effectiveness

The short-term effectiveness of a remedial alternative is evaluated relative to its effect on human health and the environment during implementation of the RA. The short-term effectiveness is assessed based on the following factors:

- Short-term risks that might be posed to the community during implementation of an alternative;
- Potential impacts on workers during RA, and the effectiveness and reliability of protective measures;
- Potential environmental impacts of the RA, and the effectiveness and reliability of mitigative measures during implementation; and
- Length of time required to achieve RAOs.

The criteria listed above correspond with the criteria used to assess the Implementation Risk Balancing Factor developed in Oregon's Environmental Cleanup Law.

5.1.6 Implementability

The remedial alternatives must be evaluated to estimate the degree to which each can satisfy implementability criteria. Implementability refers to the technical, administrative, and environmental feasibility of implementing an alternative, and the availability of various materials and services required during its implementation.

The USEPA Implementability definition generally corresponds to that specified by Oregon's Environmental Cleanup Law. However, as

summarized below, Oregon defines criteria by which Implementability is measured:

- Practical, technical, and legal difficulties and unknowns associated with the construction and implementation of a technology, engineering control, or institutional control, including potential scheduling delays;
- The ability to monitor the effectiveness of the remedy;
- Consistency with federal, state and local requirements; activities needed to coordinate with other agencies; and the ability and time required to obtain any necessary authorization from other governmental bodies;
- Availability of necessary services, materials, equipment, and specialists, including the availability of adequate off-site treatment, storage, and disposal capacity and services, and availability of prospective technologies; and
- Any other information relevant to implementability.

5.1.7 Cost

A detailed cost estimate was developed for each remedial alternative in accordance with the Remedial Action Costing Procedures Manual (USEPA 1985). These cost estimates are presented in Appendix B. Costs are based on conceptual design, and are expressed in terms of year 2000 dollars.

The Reasonableness of Cost Balancing Factor specified by Oregon's Environmental Cleanup Law provides additional requirements that must be evaluated. These criteria are:

- Cost of the RA including:
  - Capital costs, including both direct and indirect costs;
  - Annual operation and maintenance (O&M) costs;
  - Costs of any periodic review requirements; and
  - Net present value of all of the above.

- Degree to which the costs of the RA are proportionate to the benefits to human health and the environment created through risk reduction or risk management;

- With respect to hot spots of contamination in water, the degree to which the costs of the RA are proportionate to the benefits created through restoration or protection of existing and reasonably likely future beneficial uses of water;

- The degree of sensitivity and uncertainty of the costs; and

- Any other information relevant to cost-reasonableness.

5.1.8 State Acceptance

This criterion evaluates the technical and administrative issues and concerns the ODEQ may have regarding each of the alternatives.

5.1.9 Community Acceptance

This criterion evaluates technical and administrative issues and concerns the public may have regarding each of the alternatives.

5.1.10 Treatment of Hot Spots

For hot spots in groundwater, the FS must evaluate the feasibility of treatment to levels that will no longer produce significant adverse effects on the beneficial uses of the water. This criterion evaluates the ability of an alternative to meet the requirement to treat contaminated groundwater to below significant, adverse-effect levels.

5.2 IRP Site 2

5.2.1 IRP Site 2 - Individual Analysis of Alternatives

The following presents an evaluation of the RA alternatives for IRP Site 2 against the evaluation criteria. The remedial alternatives evaluated for IRP Site 2 include:

- Alternative 1: No Action

- Alternative 2: MNA
- Alternative 3: In Situ Oxidation – Potassium Permanganate Injection with MNA
- Alternative 4: In Situ Oxidation – Ozone Sparging with MNA
- Alternative 5: Enhanced Bioremediation with MNA
- Alternative 6: In-Well Aeration with MNA

5.2.1.1 IRP Site 2 - Alternative 1: No Action

The following is an evaluation of the application of Alternative 1 at IRP Site 2 with respect to the criteria described in Section 5.1.

Overall Protection of Human Health and Environment. The No Action Alternative would not be protective of human health and the environment in the short-term, because the risks associated with site groundwater would not immediately be reduced, either by treatment or by implementing restrictions that would prevent exposure site groundwater, such as institutional controls. Because contaminated Shallow Zone and Deep Zone groundwater has the potential to migrate off-site, the No Action Alternative would not provide long-term protection of human health and the environment.

Compliance with ARARs. The No Action Alternative does not meet chemical-specific ARARs because several chlorinated VOCs in Shallow Zone groundwater and VC in Deep Zone groundwater currently exceed ARARs. The No Action Alternative would potentially reduce VOC concentrations to below respective ARARs in downgradient areas of IRP Site 2 due to natural processes. However, the higher concentration VOCs in the upgradient area of IRP Site 2 are not expected to naturally degrade to below ARARs within a reasonable timeframe.

Long-Term Effectiveness and Permanence. The No Action Alternative will not provide long-term effectiveness and permanence because a residual risk to human and environmental receptors remaining from untreated chlorinated VOCs in Shallow Zone and Deep Zone groundwater exists.

Reduction of TMV through Treatment. The No Action Alternative does not include any treatment to reduce TMV. As a result, it is possible that chlorinated VOCs would continue to migrate laterally and vertically and

eventually reach off-site receptors. Biodegradation of TCE in Shallow Zone groundwater may continue to occur as observed in the past, but the natural degradation of lower-order chlorinated ethenes (cis- and trans-1,2-DCE and VC) in the Shallow Zone and Deep Zone is not expected to be significant. The degradation is expected to be slower than migration, thereby increasing the volume of contaminated groundwater.

Short-Term Effectiveness. The No Action Alternative would present short-term human health risks associated with chlorinated VOCs in groundwater at IRP Site 2. However, these risks are no greater than the existing risks at the site.

Implementability. The No Action Alternative would not incur implementation obstacles. In addition, there are no operations and maintenance requirements for the alternative.

Cost. No costs would be associated with implementing the No Action Alternative. Because this alternative is not effective in meeting the RAOs for the site, and is therefore not protective, it has a low degree of cost reasonableness.

Treatment of Hot Spots. The No Action Alternative does not meet Oregon's requirement that hot spots in water be treated to below the significant adverse-effect level.

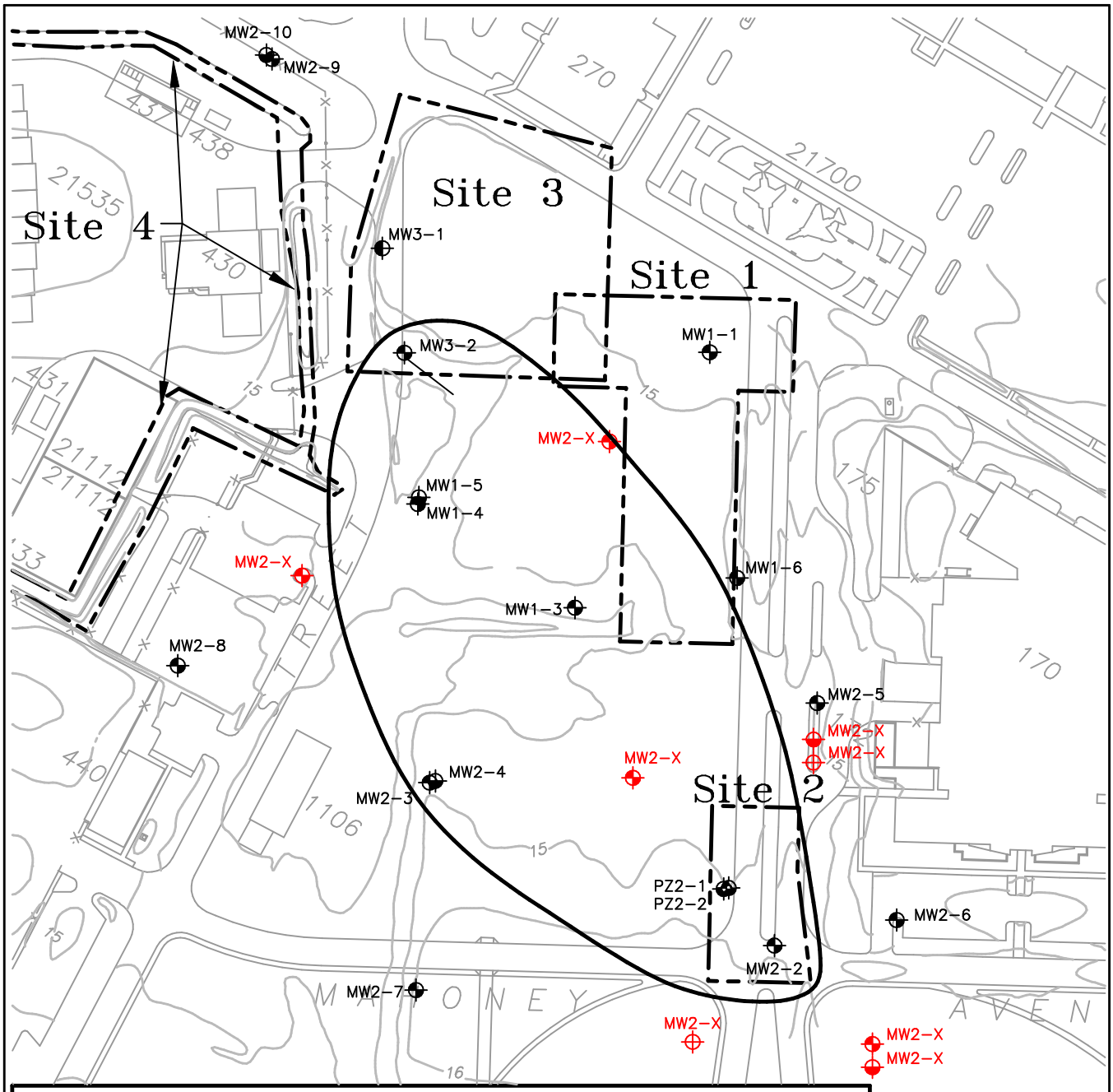
State Acceptance. The No Action Alternative would not be acceptable to ODEQ. Oregon requires that hot spots such as that present in groundwater at IRP Site 2 be treated to below the significant adverse-effect level.

Community Acceptance. The No Action Alternative is not expected to be acceptable to the community. The community is active at the Base in the form of a Restoration Advisory Board (RAB), and would not be accepting of leaving an area of groundwater impacted at the level of IRP Site 2 untreated.

5.2.1.2 IRP Site 2 - Alternative 2: Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 2 at IRP Site 2 with respect to the criteria described in Section 5.1. Figure 5-1 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. The MNA Alternative would be protective of human health and the environment in



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IRP SITE 2

ALTERNATIVE 2
MONITORED NATURAL ATTENUATION
LOCATION OF MONITORING WELLS

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FIGURE 5-1

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the short term. Near-future exposure to groundwater with unacceptable risk is prevented through institutional and engineering controls implemented at the Base. Groundwater with VOC concentrations above unacceptable risk levels has not migrated to any off-site receptors, and is not expected to do so in the near future. However, there is long-term risk associated with off-site migration of groundwater containing VOCs. During the Natural Attenuation Evaluation conducted as part of the RI (ERM 2001a), it was concluded that the degradation rate of VC is very slow. Because of this, it is possible that Shallow Zone and Deep Zone groundwater containing levels of VC above the RAOs has the potential to migrate off-site. The MNA Alternative, therefore, would not provide long-term protection of human health and the environment.

Compliance with ARARs. The MNA Alternative does not meet chemical-specific ARARs. Several chlorinated VOCs in Shallow Zone and Deep Zone groundwater currently exceed ARARs, and are not expected to naturally degrade to below levels determined by the chemical-specific ARARs within a reasonable timeframe compared to the time frames offered by other methods.

Long-Term Effectiveness and Permanence. The MNA Alternative may provide long-term effectiveness and permanence due to eventual natural degradation of VOCs below RAOs. However, this is unlikely to occur within a reasonable time period. It is uncertain if this alternative will treat groundwater to appropriate levels prior to migrating off-site, thereby violating the first RAO.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV through Treatment. The MNA Alternative is not expected to significantly reduce the TMV of VOCs at IRP Site 2 within a reasonable timeframe. Biodegradation of TCE in Shallow Zone groundwater may continue to occur as observed in the past, but the natural degradation of lower-order chlorinated ethenes such as cis-1,2-DCE and VC in Shallow Zone and Deep Zone groundwater is not expected to occur rapidly. As such, the toxicity of groundwater may be slowly reduced. As VC is produced through reductive dechlorination of TCE and dichloroethene, the mobility will actually increase due to the increased solubility and decreased sorption tendency of VC in relation to

its parent compounds. The volume of contaminated groundwater may actually increase due to potential further downgradient and vertical migration of slowly degrading VOCs, particularly VC.

Short-Term Effectiveness. The MNA Alternative would present short-term human health risks associated with chlorinated VOCs in groundwater at IRP Site 2. The short-term risks associated with this alternative are a result of the expected duration required to meet treatment objectives. The required duration of MNA could exceed 30 years. Within that period, groundwater containing unacceptable concentrations of VOCs may migrate off-site, violating the first RAO and presenting risk to off-site receptors.

The institutional and engineering controls implemented under this alternative are expected to prevent unacceptable risk to on-site receptors, including Base workers and other workers implementing this RA.

Implementability. The MNA Alternative would not present implementation obstacles. The additional proposed wells will ensure the ability to monitor the effectiveness of this alternative, and the required technologies used for this alternative are readily available and implementable.

Cost. Capital and O&M costs associated with Alternative 2 are summarized in Table B-2, and detailed in Table B-3. Direct and indirect capital costs for this alternative are estimated to be $116,100, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first year is estimated to be $110,000, which assumes quarterly groundwater sampling. The O&M cost for the following 30 years is estimated to be $27,500 per year, which assumes annual groundwater sampling. The net present value of 31 years of O&M costs is $434,800, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 2, including a 30 percent contingency, is $717,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Because Alternative 2 does not meet the RAOs for the site within a reasonable time period, this alternative is not protective, and therefore has a low degree of cost reasonableness.

Treatment of Hot Spots. Although MNA is considered a treatment technology by the State of Oregon, the hot spot at IRP Site 2 is not

expected to be treated to concentrations below the significant adverse-effect level in a timely manner under this alternative. The hot spot, defined by the extent of contaminants above respective significant adverse-effect levels, could potentially expand due to migration of the source area.

State Acceptance. The Natural Attenuation Alternative would not be expected to be acceptable to ODEQ. Oregon requires that hot spots such as that present in groundwater at IRP Site 2 be treated within a reasonable timeframe and this is not expected to occur using the Natural Attenuation alternative.

Community Acceptance. The Natural Attenuation Alternative is not expected to be acceptable to the community due to the expected duration required to meet treatment goals.

5.2.1.3 IRP Site 2 - Alternative 3: In Situ Oxidation - Potassium Permanganate Injection with Monitored Natural Attenuation

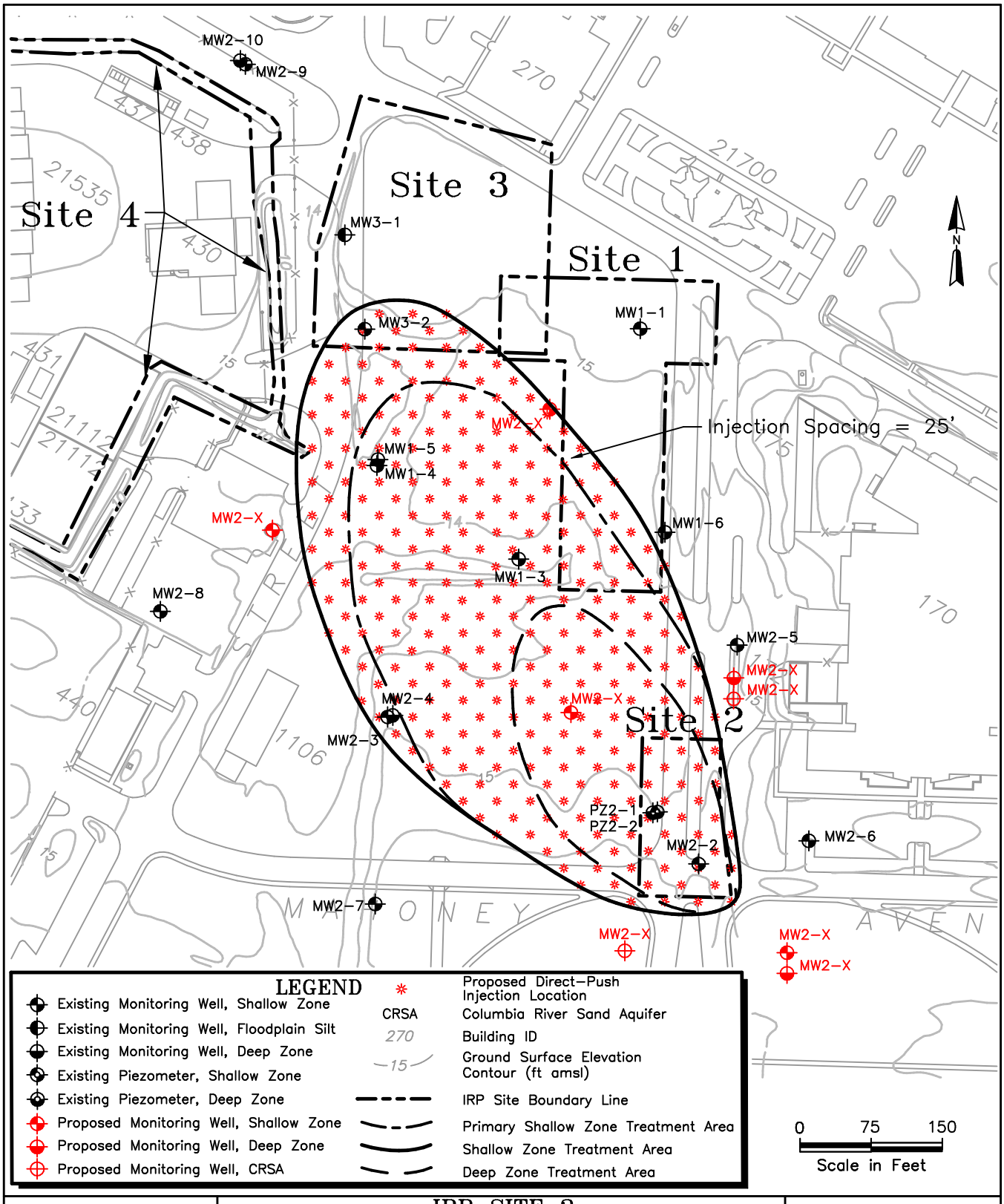
The following is an evaluation of the application of Alternative 3 at IRP Site 2 with respect to the criteria described in Section 5.1. Figure 5-2 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. This alternative is expected to effectively remove or significantly reduce the concentrations of VOCs from Shallow Zone and Deep Zone groundwater at IRP Site 2. The risks associated with exposure to these compounds would be reduced to an acceptable level based on the current and future land use.

Compliance with ARARs. This alternative is expected to effectively reduce the concentrations of VOCs in groundwater to below the levels set by chemical-specific ARARs. Any injection activities must be coordinated through the Oregon UIC program described in Section 4.1.3.6. Compliance with this program is expected to be achievable through registration, monitoring, and reporting.

Long-Term Effectiveness and Permanence. The residual risk posed by groundwater at IRP Site 2 would be reduced by this alternative because the contaminants associated with the risks are destroyed. Groundwater monitoring would be required for an extended period after the completion of this alternative in order to verify attainment of the RAOs.

The contaminants in the downgradient areas of the site treated by MNA are expected to be destroyed within a reasonable time frame, due to



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IRP SITE 2
ALTERNATIVE 3
IN SITU OXIDATION-POTASSIUM PERMANGANATE INJECTION WITH MONITORED NATURAL ATTENTUATION
PLAN VIEW OF TREATMENT SYSTEM LAYOUT

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FIGURE 5-2

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enhanced conditions from upgradient permanganate injection. However, if long-term monitoring indicates that VOCs in this area are not degrading at an acceptable rate, potassium permanganate will be injected in this area.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant if the ownership or leaseholder of the Base property changes.

Reduction of TMV through Treatment. The use of potassium permanganate oxidation and MNA to treat VOCs in Shallow Zone and Deep Zone groundwater will result in reduced toxicity, mobility, and volume of hazardous materials in IRP Site 2 groundwater. This reduction is performed through chemical and biological destruction rather than transfer of contaminants from one media to another. The treatment process is irreversible and will result in the production of only harmless byproducts.

Short-Term Effectiveness. Workers performing the injection will be in contact with potassium permanganate in solid or dissolved form. Worker exposure would be minimized by the use of appropriate health and safety personal protective equipment.

Adverse effects on groundwater that is used for drinking or irrigation is not expected. The oxidative effects of the potassium permanganate will diminish with time as it reacts with organic material in the subsurface. As described in Section 4.4.5.1, other water quality effects are not expected to be significant enough to reach nearby receptors. Groundwater in the treatment area will be impacted by dilute potassium permanganate, requiring consideration if Base workers expect to come into contact with groundwater within the treatment area.

Risks associated with VOCs in groundwater are quickly reduced due to the rapid treatment resulting from permanganate oxidation. Destruction of VOCs in areas treated by potassium permanganate is expected to be complete within 1 to 2 years.

Implementability. The implementability of this alternative may be inhibited by the geology at the site. Preferential flow paths and areas of low conductivity will dictate where the injected potassium permanganate will flow. This may result in small regions of an aquifer not receiving

injected material. This can be overcome by reducing the grid spacing for the direct-push injection and staggering the locations of later injections.

The injection of potassium permanganate will require coordination with the ODEQ UIC program. This will create scheduling delays due to ODEQ review and public participation requirements.

The technical aspects of the actual direct-push injection of potassium permanganate are simple and should not be constrained.

Cost. Capital and O&M costs associated with Alternative 3 are summarized in Table B-2 and detailed in Table B-4. Direct and indirect capital costs for this alternative are estimated to be $1,438,550, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 2 years is estimated to be $220,000, which assumes quarterly groundwater sampling. The O&M cost for the following 5 years is estimated to be $27,500 per year, which assumes annual groundwater sampling. The net present value of 7 years of O&M costs is $331,300, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 3, including a 30 percent contingency, is $2,301,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Alternative 3 is the least expensive of the alternatives that employ active remedial measures. Additionally, this alternative is expected to meet the RAOs for the site within a reasonable time period and is thus protective. As a result, this alternative has a high degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat the VOCs in Shallow Zone and Deep Zone groundwater at IRP Site 2 to below significant adverse effect levels within a reasonable timeframe.

State Acceptance. The use of potassium permanganate to treat groundwater at the Base has been accepted by ODEQ for relatively small-scale implementation and is expected to be acceptable for full-scale application. However, ODEQ approval of larger scale use of potassium permanganate injection is likely to be contingent on an appropriate monitoring and reporting plan to ensure compliance with the UIC program.

Community Acceptance. The use of potassium permanganate is expected to have some community resistance since it relies on the injection of a

foreign material into the groundwater and the perception that it will cause groundwater flowing away from the site to remain purple. An appropriate monitoring and reporting system is an important component of this alternative to allow the public the opportunity to monitor water quality during the remedial action.

5.2.1.4 IRP Site 2 - Alternative 4: In Situ Oxidation - Ozonation with Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 4 at IRP Site 2 with respect to the criteria described in Section 5.1. Figure 5-3 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. This alternative is expected to effectively remove or significantly reduce the concentrations of VOCs from Shallow Zone and Deep Zone groundwater at IRP Site 2. The risks associated with exposure to these compounds would be reduced to an acceptable level based on the current and future land use.

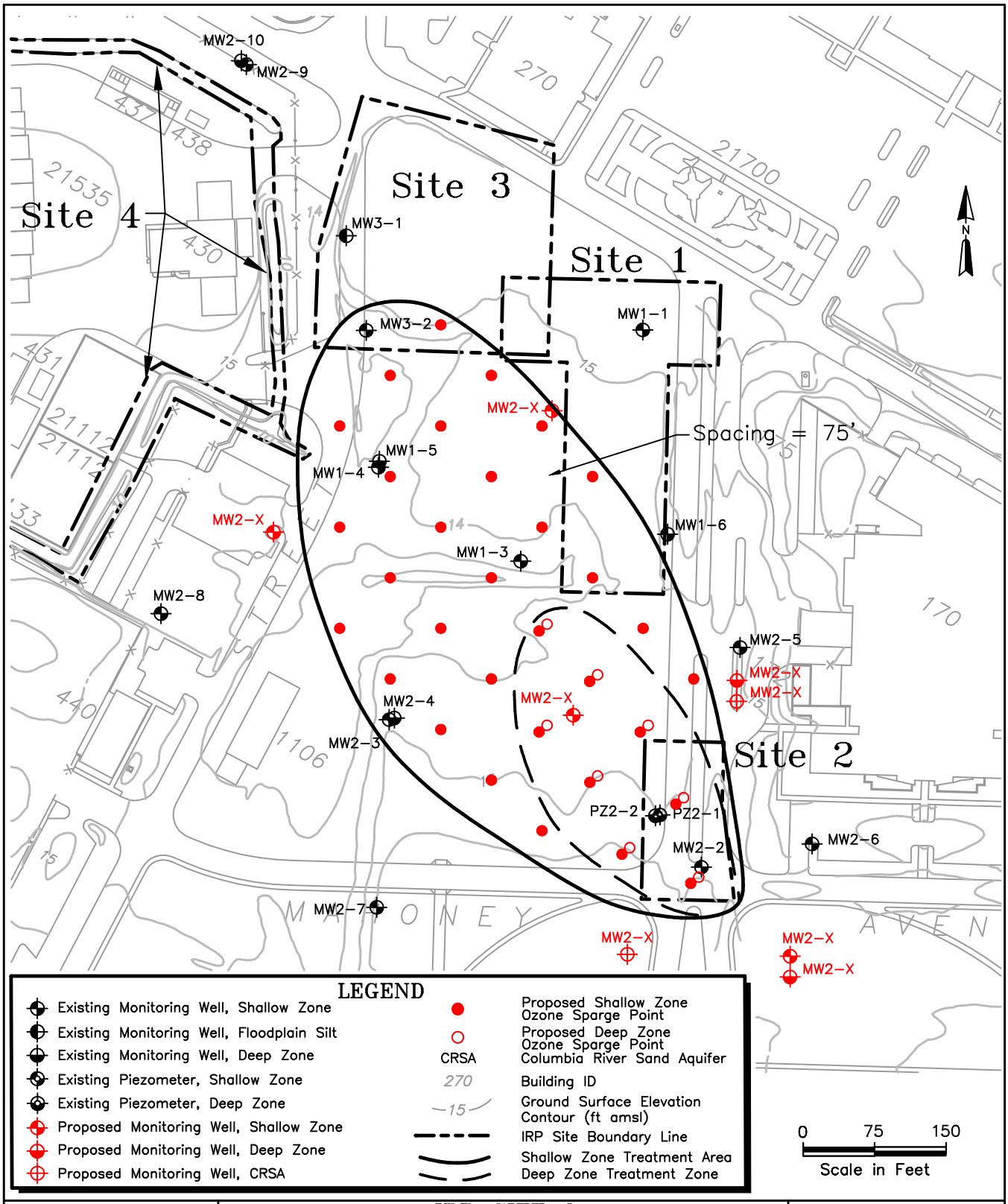
Compliance with ARARs. This alternative is expected to effectively reduce the concentrations of VOCs in Shallow Zone and Deep Zone groundwater to below the levels set by chemical-specific ARARs. Any injection activities must be coordinated through the Oregon UIC program described in Section 4.1.3.6. Compliance with this program is expected to be achievable through registration, monitoring, and reporting.

Long-Term Effectiveness and Permanence. The residual risk posed by groundwater at IRP Site 2 would be reduced by this alternative because the contaminants associated with the risks are destroyed. Groundwater monitoring would be required for an extended period after the completion of this alternative in order to verify attainment of the RAOs.

The contaminants in the downgradient areas of the site treated by MNA are expected to be destroyed within a reasonable time frame, due to enhanced conditions from upgradient ozonation.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant if the ownership or leaseholder of the Base property changes.

Reduction of TMV Through Treatment. The use of ozonation and MNA to treat VOCs in groundwater will result in reduced toxicity, mobility, and



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IRP SITE 2
ALTERNATIVE 4
IN SITU OXIDATION–OZONATION WITH MONITORED NATURAL ATTENTUATION
PLAN VIEW OF TREATMENT SYSTEM LAYOUT

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FIGURE 5–3

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volume of hazardous materials in IRP Site 2 Shallow Zone and Deep Zone groundwater. This reduction is performed through chemical and biological destruction rather than transfer of contaminants from one media to another. The treatment process is irreversible and will result in the production of only harmless byproducts.

Short-Term Effectiveness. Ozone is a strong oxidant and care must be taken to prevent worker or base employee exposure to ozone generated for injection. This would include periodic monitoring of ozone in workspace air and enclosing and locking the ozone generator and sparge wellheads to prevent tampering.

Adverse effects on groundwater that is used for drinking or irrigation is not expected. The oxidative effects of ozone are short lived in groundwater. As described in Section 4.4.5.1, other water quality effects are not expected to be significant enough to reach nearby receptors.

Risks associated with VOCs in groundwater are quickly reduced due to the rapid treatment resulting from ozonation. Destruction of VOCs in areas treated by ozonation is expected to be complete within 3 years.

Implementability. Implementability issues identified for the installation of this alternative include installation of sub-grade piping across base roads, if necessary, avoidance of underground utilities, and connection to base utilities.

The implementability of this alternative may be inhibited by the geology at the site. Preferential flow paths and areas of low conductivity will dictate where sparged air will flow. This can usually be overcome by utilizing a pulsed sparging technique consisting of alternating periods of sparging and rest.

The injection of ozone will require coordination with the ODEQ UIC program. This will create scheduling delays due to ODEQ review and public participation requirements.

Cost. Capital and O&M costs associated with Alternative 4 are summarized in Table B-2 and detailed in Table B-5. Direct and indirect capital costs for this alternative are estimated to be $1,940,750, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 3 years is estimated to be $639,300, which assumes quarterly groundwater sampling and 3 years of treatment system operation. The O&M cost for the following 5 years is estimated to be $27,500 per year,

which assumes annual groundwater sampling. The net present value of 8 years of O&M costs is $752,100, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 4, including a 30 percent contingency, is $3,501,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to -30 percent.

Alternative 4 is expected to meet the RAOs for the site within a reasonable timeframe, and is thus protective. However, Alternative 4 is one of the most expensive of all the alternatives, therefore, it has a mid-range degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat the VOCs in Shallow Zone and Deep Zone groundwater at IRP Site 2 to below significant adverse-effect levels within a reasonable timeframe.

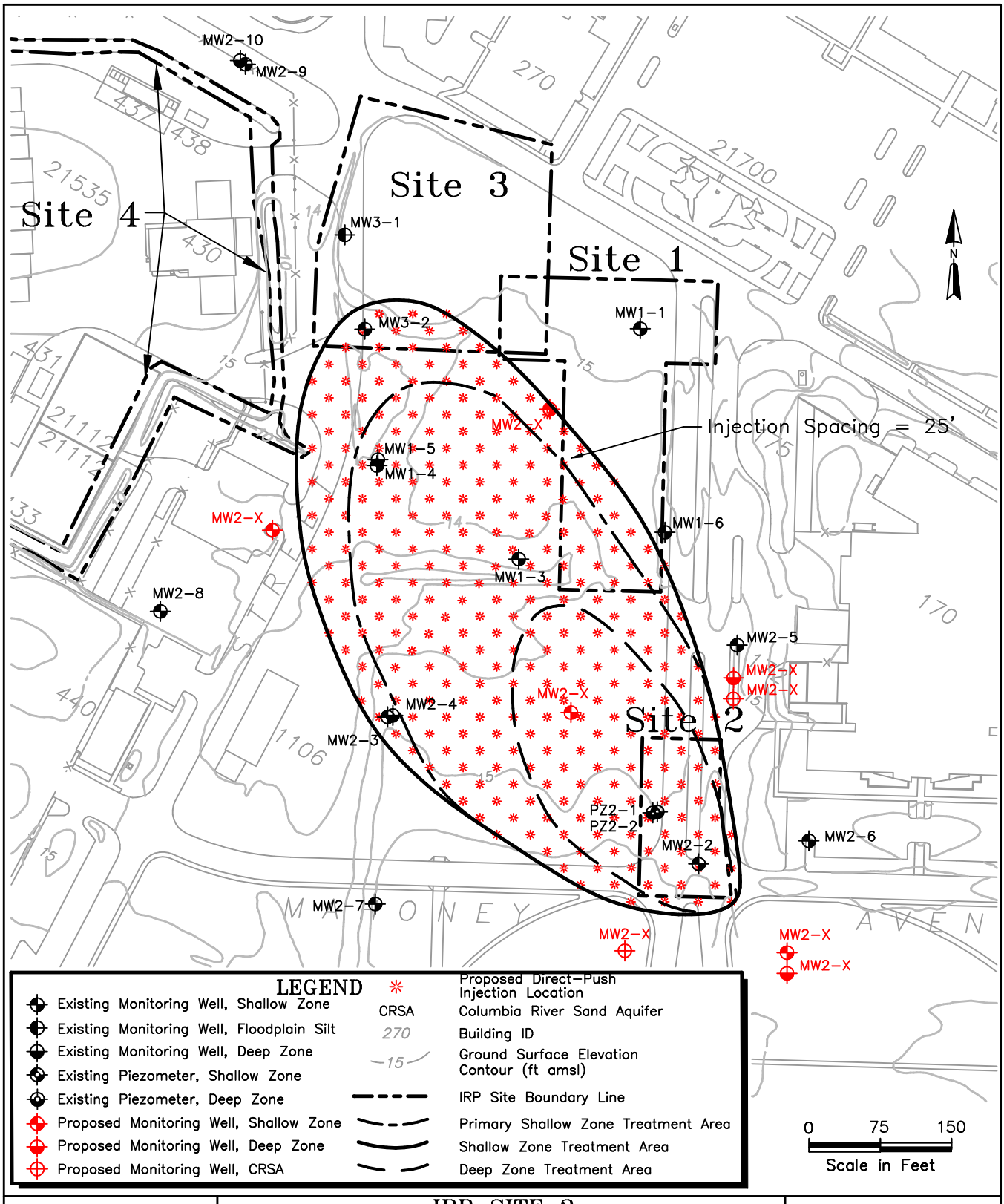
State Acceptance. The use of ozonation to treat groundwater at the Base has been accepted by ODEQ for relatively small-scale implementation and is expected to be acceptable for full-scale application. However, ODEQ approval of larger scale use of an injection technology is likely to be contingent on an appropriate monitoring and reporting plan to ensure compliance with the UIC program.

Community Acceptance. The use of ozonation is expected to have less community resistance than other injection technologies since it relies on the injection of a short-lived gas rather than a liquid. However, an appropriate monitoring and reporting system is still an important component of this alternative to allow the public the opportunity to monitor water quality during the remedial action.

5.2.1.5 IRP Site 2 - Alternative 5: Enhanced Bioremediation with Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 5 at IRP Site 2 with respect to the criteria described in Section 5.1. Figure 5-4 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. This alternative is expected to effectively reduce VOCs in Shallow Zone and Deep Zone groundwater at IRP Site 2, as well as the risks associated with exposure to this contamination. However, the effectiveness of this alternative is uncertain, primarily because the use of oxygen releasing materials to treat groundwater containing VC has not been performed extensively. Approximately 75 percent removal of VC was observed during a pilot test



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IRP SITE 2
ALTERNATIVE 5
ENHANCED BIOREMEDIATION WITH MONITORED NATURAL ATTENTUATION
PLAN VIEW OF TREATMENT SYSTEM LAYOUT

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FIGURE 5-4

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performed using ORC® at IRP Site 2. It is expected that VC and cis-1,2-DCE will degrade following the creation of enhanced aerobic conditions, but it is uncertain whether the treatment will reduce concentrations to those below RAOs.

This alternative is expected to take longer to begin significant reduction of VOCs than other alternatives, because native microbes must acclimate to the enhanced environment following injection.

Compliance with ARARs. The ability of this alternative to reach ARARs through treatment is uncertain. The use of a hydrogen releasing material is expected to effectively reduce concentrations of TCE to below ARARs. The effectiveness of enhanced aerobic bioremediation at reducing VC to the very low concentrations specified by chemical-specific ARARs is uncertain. Any injection activities must be coordinated through the Oregon UIC program described in Section 4.1.3.6. Compliance with this program is expected to be achievable through registration, monitoring, and reporting.

Long-Term Effectiveness and Permanence. The residual risk posed by Shallow Zone and Deep Zone groundwater at IRP Site 2 would be reduced by this alternative because the contaminants associated with the risks are degraded to harmless byproducts. Although it is uncertain if this alternative will reduce VC to below the significant adverse-effect level at the site, the reduction resulting from treatment should be sufficient to prevent off-site migration, thereby likely meeting the first RAO. Groundwater monitoring would be required for an extended period to verify attainment of this RAO.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV through Treatment. Enhancing bioremediation in IRP Site 2 groundwater will reduce the toxicity, mobility, and volume of VOCs. This is performed through irreversible biological destruction, rather than transfer of contaminants from one media to another. The amount of VOCs that will be degraded by enhanced bioremediation at this site is unknown. A significant reduction of VOC concentration is expected, though, which will result in significant reduction of toxicity.

Mobility and volume of contaminated groundwater are also expected to decrease.

Short-Term Effectiveness. This alternative is expected to take a short period to begin effective removal, thus delaying the reduction of risk. Natural biological activity at IRP Site 2 has been shown to be stagnant, and will require acclimation following injection of an enhancing product.

Groundwater containing unacceptable VOC concentrations has not migrated off Base, and is not expected to reach Base boundaries in the immediate future. Also, the institutional and engineering controls used as part of this alternative will prevent exposure to VOCs at the site. These factors limit the added risks related to the delayed effectiveness of this alternative.

Implementability. No issues have been identified for the installation of this alternative. The materials will be injected using a direct-push method.

The treatment of groundwater with oxygen releasing material relies on the flow of groundwater past the injection locations more than the flow of injected material into surrounding groundwater. The shallow gradient of groundwater at IRP Site 2 will limit the rate of transfer of oxygen created by injected material to the surrounding groundwater.

The injection of any material will require coordination with the ODEQ UIC program. This will create scheduling delays due to ODEQ review and public participation requirements.

Cost. Capital and O&M costs associated with Alternative 5 are summarized in Table B-2 and detailed in Table B-6. Direct and indirect capital costs for this alternative are estimated to be $1,806,850, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 2 years is estimated to be $220,000, which assumes quarterly groundwater sampling. The O&M cost for the following 5 years is estimated to be $27,500 per year, which assumes annual groundwater sampling. The net present value of 7 years of O&M costs is $331,300, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 5, including a 30 percent contingency, is $2,780,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Alternative 5 is one of the least expensive of all the alternatives. However, this alternative is not expected to meet the RAOs for the site in a reasonable time period, and is therefore not protective. As a result, this alternative has a mid-range degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat most VOCs at IRP Site 2 to below respective, significant adverse-effect levels within a reasonable timeframe. It is unknown if VC is capable of being treated to its significant adverse effect level of 2 µg/l (ODEQ 1998c) within a reasonable timeframe by this method.

State Acceptance. The use of enhanced bioremediation to treat groundwater at the Base has been accepted by ODEQ for relatively small-scale implementation and is expected to be acceptable for full-scale application.

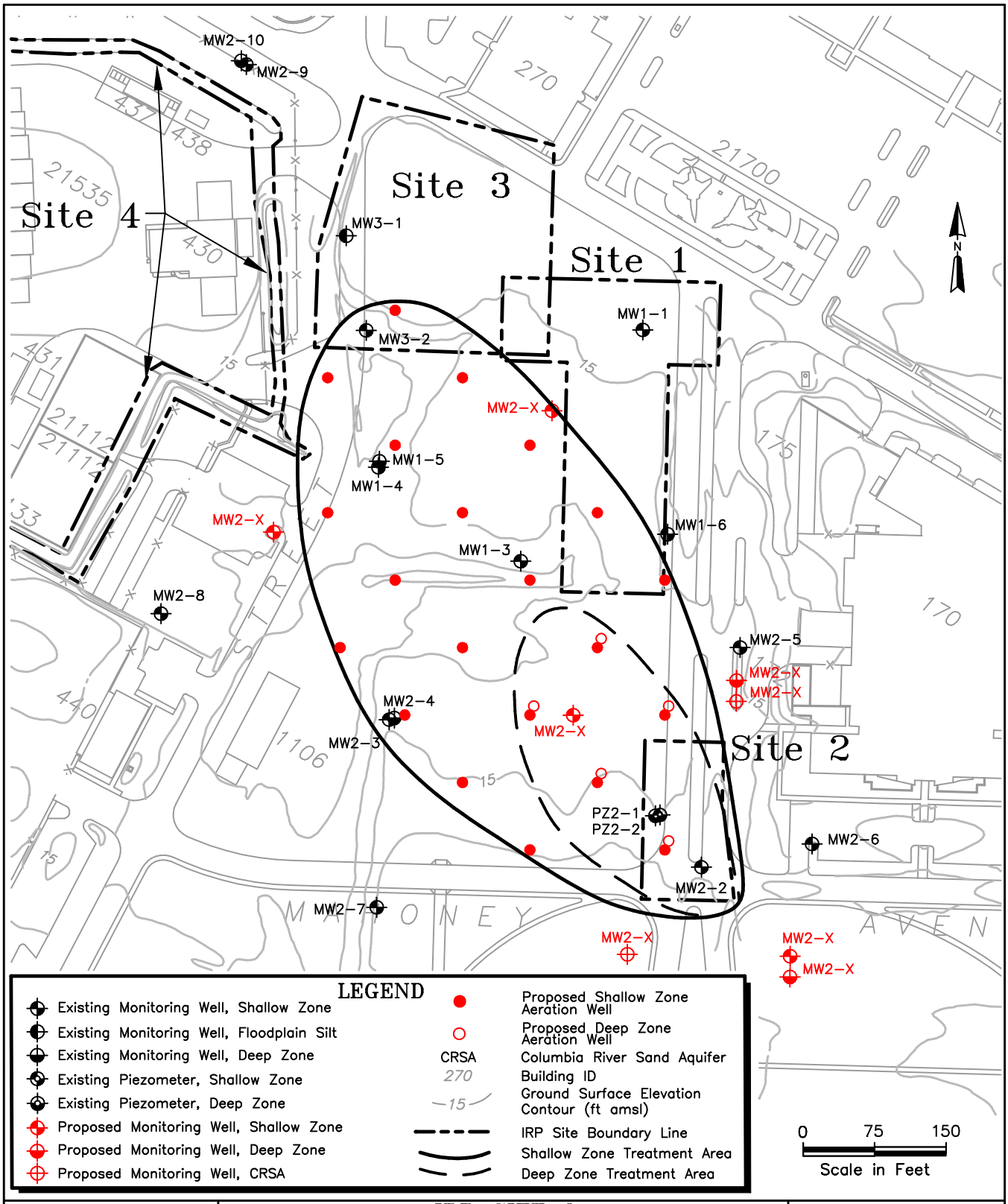
Community Acceptance. The use of enhanced bioremediation is not expected to have community resistance. However, since this technology is less established for treatment of chlorinated hydrocarbons, the community may be skeptical that it would effectively achieve cleanup goals.

5.2.1.6 IRP Site 2 - Alternative 6: In-Well Aeration with Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 6 at IRP Site 2 with respect to the criteria described in Section 5.1. Figure 5-5 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. This alternative would reduce the risk posed by IRP Site 2 by reducing the concentration of VOCs in Shallow Zone and Deep Zone groundwater, and the potential for contaminated groundwater to migrate to off-site receptors. The risks associated with exposure to these compounds would be reduced to an acceptable level, based on the current and future land use.

Compliance with ARARs. This alternative is expected to reduce VOCs in IRP Site 2 groundwater to below chemical-specific ARARs. Groundwater within the zone of active treatment by in-well aeration is expected to be treated to concentrations below ARARs within a reasonable time-frame. MNA is expected to degrade VOCs in downgradient groundwater outside of the radius of influence of the in-well aeration system to below ARARs, although at a slower rate than within the active treatment zone.



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IRP SITE 2
ALTERNATIVE 6
IN-WELL AERATION
WITH MONITORED NATURAL ATTENTUATION
PLAN VIEW OF TREATMENT SYSTEM LAYOUT

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FIGURE 5-5

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Long-Term Effectiveness and Permanence. The residual risk posed by IRP Site 2 would be reduced by this alternative because the risk posed by the VOCs in Shallow Zone and Deep Zone groundwater would be significantly reduced. Groundwater monitoring will be required beyond the operation of the in-well aeration system to verify attainment of the clean-up goals.

The contaminants in the downgradient areas of the site treated by MNA are expected to be destroyed within a reasonable timeframe, due to enhanced aerobic conditions from upgradient aeration. However, if long-term monitoring indicates that VOCs in this area are not degrading at an acceptable rate, expansion of the aeration system will be considered to actively treat this area.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV Through Treatment. Unlike other treatment technologies discussed in this FS, this technology is based on the transfer of contaminant from one media to another, rather than destruction. Transferring the VOCs from the groundwater to the activated carbon reduces the mobility and volume of the contaminants. The reduction of toxicity of the contaminants would depend on the final disposition of the spent carbon. If the spent carbon is to be disposed of at a landfill, the toxicity is not reduced. This process is irreversible if the activated carbon is handled properly.

Short-Term Effectiveness. It is difficult to estimate with accuracy the time required to achieve the remediation goal. Based on similar scenarios, the in-well aeration system should reduce VOC concentrations in groundwater to below treatment goals within 3 years. The area to be treated by MNA will not experience reductions at the same rate as the in-well aeration area. However, the risks associated with this area are lower.

Implementability. Implementability issues identified for the implementation of this alternative include installation of sub-grade piping across base roads (if necessary), avoidance of underground utilities, and connection to base utilities.

This technology has been shown to effectively remove VOCs from groundwater in locations with adequate subsurface flow characteristics. However, it is still considered an innovative technology, and has not been tested as extensively as some other technologies.

Cost. Capital and O&M costs associated with Alternative 6 are summarized in Table B-2 and detailed in Table B-7. Direct and indirect capital costs for this alternative are estimated to be $1,971,250, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 3 years is estimated to be $777,900, which assumes quarterly groundwater sampling and 3 years of treatment system operation. The O&M cost for the following 5 years is estimated to be $27,500 per year, which assumes annual groundwater sampling. The net present value of 8 years of O&M costs is $891,000, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 6, including a 30 percent contingency, is $3,721,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to -30 percent.

Alternative 6 is expected to meet the RAOs for the site within a reasonable time period, and is therefore protective. However, this alternative is the most expensive alternative, and therefore has a mid-range degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat the VOCs in Shallow Zone and Deep Zone groundwater at IRP Site 2 to below significant adverse effect levels within a reasonable timeframe.

State Acceptance. The use of in-well aeration to treat groundwater at the Base would be expected to be acceptable by ODEQ for full-scale implementation. There are no significant water quality issues related to implementation of this technology, which is a major issue with ODEQ.

Community Acceptance. The use of in-well aeration to treat groundwater at the Base would be expected to be acceptable by community residents.

5.2.2 Comparative Analysis of Alternatives – IRP Site 2

The above-detailed evaluation consisted of an individual analysis of each of the six RA alternatives for IRP Site 2 with respect to: protectiveness, compliance with ARARs, long-term effectiveness and permanence, reduction of TMV through treatment, short-term effectiveness,

implementability, cost, and treatment of hot spots. Below, the alternatives are compared to each other, and rated based on how well each satisfies the evaluation criteria. Because all of the action alternatives involve the completion of a set of common tasks, the following comparative analysis will focus only on those actions that are in addition to the common tasks for a specific alternative.

5.2.2.1 IRP Site 2 - Overall Protection of Human Health and the Environment

Chemically impacted groundwater at IRP Site 2 does not pose immediate risk to human health and the environment because the impacted groundwater is not currently used. Therefore, all of the alternatives are equally protective in the immediate timeframe. However, since the exposure pathway used for this FS considers migration of impacted groundwater to other water bodies, such as deeper aquifers or surface water, the most protective alternative would be that which would most reliably, completely, and quickly remove those chemicals impacting groundwater at IRP Site 2.

Alternatives 1 (No Action) and 2 (MNA) are not expected to reliably, completely, or quickly remove the chlorinated VOCs impacting groundwater at IRP Site 2.

The reliability of Alternative 6 (In-Well Aeration with MNA) is uncertain. A technology similar to Alternative 6 has been shown to remove VOCs from groundwater extracted from the Shallow Zone at IRP Site 2. However, the recirculation-well form of this technology proposed for this FS has not been tested at the Base.

Alternative 5 (Enhanced Bioremediation with MNA) is expected to reliably and quickly remove risks associated with chlorinated VOCs impacting groundwater at IRP Site 2. It was proven during the IRAC treatability test that the site contaminants can be reduced by an oxygen releasing material. However, Alternative 5 is not expected to reduce VOC concentrations enough to meet the RAOs. It is expected that the effectiveness of a bioremediation enhancing material will diminish as the amount of VOCs and other organic material decreases.

Alternative 4 is expected to reliably and quickly reduce concentrations of VOCs. However, since this technology relies on a recirculation principle similar to that in Alternative 6, its reliability is uncertain.

The alternative that is the most protective of human health and the environment is Alternative 3. Like alternatives based on other

technologies, this alternative has been proven to quickly destroy chlorinated VOCs in groundwater at the Base. This alternative is much more reliable and thorough than others because potassium permanganate provides residual treatment capacity and the effectiveness of this technology is more easily monitored. Incomplete removal under this alternative is easily remedied by repeated injections of potassium permanganate.

5.2.2.2 IRP Site 2 - Compliance with ARARs

The ARAR that governs this FS is the federal MCL for each of the chlorinated VOCs impacting groundwater. The alternatives that are not expected to comply with this ARAR include Alternatives 1, 2, and 5, as these options are not expected to reduce the concentration of VC to below the MCL of 2 µg/l for this compound.

Alternatives 4 and 6 do have the potential to reduce concentrations of VOCs to below the respective ARARs. However, as described above, the ability of these technologies to meet this goal across a plume of groundwater is uncertain.

Alternative 3 will most reliably treat VOCs in groundwater at IRP Site 2 to below ARARs. Because of the complete destruction of VOCs that occurs upon contact with potassium permanganate solution, and the simplicity of delivery, this alternative can be tailored in the field to provide complete destruction of VOCs impacting groundwater.

5.2.2.3 IRP Site 2 - Long-Term Effectiveness and Permanence

Alternatives 1 and 2 do not provide long-term effectiveness. These alternatives are not expected to reduce concentrations of VOCs in groundwater at IRP Site 2 to below the respective significant adverse effect levels.

Alternatives 3, 4, and 5 will provide equal long-term effectiveness, provided that these options uniformly meet RAOs as well. These alternatives utilize technologies that provide in situ destruction of contaminants. These technologies are not reversible and do not pose additional risks after meeting treatment goals.

Alternative 6 will provide similar long-term effectiveness to that of Alternatives 3, 4, and 5. However, rather than destroying the contaminants in situ, this alternative uses a technology that strips VOCs

from groundwater, and moves them above ground through sparged air. The VOCs are then destroyed. This technology is also non-reversible and poses no additional risks after meeting treatment goals.

Alternative 3 is the most effective alternative in the long term because of the greater residual ability of potassium permanganate to destroy VOCs.

5.2.2.4 IRP Site 2 - Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives 1 and 2 will not significantly reduce TMV of groundwater impacted by VOCs at IRP Site 2. Some reduction of toxicity may occur through reduction of VOC concentration at localized areas; however, the mobility and volume will remain unchanged, or may possibly increase.

Alternatives 3, 4, and 6 are expected to effectively reduce the toxicity, mobility, and/or volume of VOC-impacted groundwater at IRP Site 2. Alternative 3 is expected to provide the greatest reduction for all three.

Alternative 5 is expected to significantly reduce the toxicity of groundwater impacted by VOCs. However, since this technology is not expected to provide effective treatment at lower concentrations, the reduction of the volume of impacted groundwater may not be as significant as that of Alternatives 3, 4, and 6.

5.2.2.5 IRP Site 2 - Short-Term Effectiveness

The short-term effectiveness of Alternatives 1 and 2 is unacceptably low, based on the time required to reduce VOC concentrations in groundwater at IRP Site 2. VOCs could possibly migrate off-site or down to the CRSA within the time required to reach cleanup goals under these alternatives.

Alternatives 3, 4, 5, and 6 all provide sufficient short-term effectiveness. These alternatives will significantly reduce VOC concentrations in groundwater in a relatively brief time. Alternatives 3 and 4 pose threats to workers in the form of exposure to the oxidizers potassium permanganate and ozone. These threats can be controlled by the use of health and safety measures. The materials used in Alternative 5 exhibits a slight inhalation danger to workers implementing this alternative. No threats to workers are expected during implementation of Alternative 6 beyond the typical mechanical hazards potentially associated with well drilling and machinery installation.

5.2.2.6 IRP Site 2 - Implementability

Alternatives 1 and 2 are the easiest alternatives to implement as the former requires no action and the latter requires only installation of additional monitoring wells and periodic monitoring of VOCs and natural attenuation parameters. However, the reliability of these alternatives is questionable, and it is expected that these alternatives would require future replacement.

The next easiest alternatives to implement are Alternatives 3 and 5. These alternatives involve the direct-push injection of a treatment material and progress monitoring. Alternative 3 is expected to reduce VOCs more fully in IRP Site 2 groundwater. Alternative 5 may require replacement if it should fail to provide complete reduction.

The implementation of Alternatives 4 and 6 involve the construction of numerous, complex sparge wells, as well as a system of piping, compressors, and controls. These systems would require periodic monitoring, trouble shooting, and maintenance.

5.2.2.7 IRP Site 2 - Cost

Alternative 1 and 2 are the least expensive alternatives; however, these alternatives fail to satisfy the protectiveness criterion because they are not expected to meet the site RAOs within a reasonable time period. These alternatives are therefore not cost reasonable. Alternative 5 is also not expected to meet the RAOs within a reasonable time period, although it is one of the least expensive of the alternatives that employ active remedial measures. As a result, Alternative 5 is not the most cost reasonable option. Alternatives 4 and 6 are expected to meet the site RAOs within a reasonable time period, although, these are the two most expensive alternatives. Alternative 3 meets the same level of protectiveness as Alternatives 4 and 6, but is less expensive. Therefore, Alternative 3 is the most cost reasonable alternative.

5.2.2.8 IRP Site 2 - Treatment of Hot Spots

Alternatives 1 and 2 are not expected to effectively treat hot spots of contamination in groundwater at IRP Site 2. The implementation of either of these alternatives could potentially allow the extent of these hot spots to increase.

All of the remaining alternatives would likely reduce the size of the hot spots at IRP Site 2 through treatment. It is uncertain whether Alternative 5 would be effective at treating VOCs, particularly VC, to below the significant adverse-effect level.

Alternatives 3, 4, and 6 are potentially capable of treating VOCs to below the significant adverse-effect levels; however, the expected reliability of Alternative 3 is greater than the others.

5.2.2.9 IRP Site 2 – State Acceptance

Alternatives 1 and 2 are not expected to effectively treat hot spots of contamination in groundwater at IRP Site 2 and therefore are not expected to be acceptable to ODEQ. All of the remaining alternatives would likely reduce the size of the hot spots at IRP Site 2 through treatment as required by ODEQ. However, the use of potassium permanganate injection would be scrutinized by ODEQ the most due to the injection of an oxidizing fluid into the groundwater.

5.2.2.10 IRP Site 2 – Community Acceptance

Alternatives 1 and 2 are not expected to be acceptable to the community because they are not expected to treat hot spots of contamination in groundwater at IRP Site 2 within a reasonable timeframe.

All of the remaining alternatives would likely reduce the size of the hot spots at IRP Site 2 through treatment and should generally be acceptable to community residents. However, for Alternative 3 using potassium permanganate injection it will be important to implement a monitoring program that will sufficiently allow the public to review water quality data.

5.2.3 IRP Site 2 - Preferred Alternative

Alternative 3 is the preferred alternative because it best satisfies the protectiveness criteria and the remedy-selection balancing factors. Alternative 3 involves direct-push injection of potassium permanganate solution through the vertical extent of both the Shallow Zone and Deep Zone, combined with MNA. This alternative also includes the implementation of the common tasks described in Section 4.5.2. By implementation of Alternative 3, the following achievements are expected:

- Human health and the environment within the locality of facility would be protected over the long term.

- The residual risk associated with VOCs in groundwater remaining after completion of this alternative would be acceptable, as described in Section 6.2.

- Base workers would be protected from exposure to VOCs in groundwater through the use of institutional and engineering controls.

- Compared to the other alternatives, greater cost savings would be realized by utilizing permanganate injection to reduce VOC concentrations in IRP Site 2 groundwater.

The IRAC program described previously in Sections 2.8.2 and 3.2.4 will accomplish some of the components of the preferred alternative for IRP Site 2. The full-scale demonstration that is the second phase of the IRAC program involves the injection of potassium permanganate into Shallow Zone groundwater using the same direct-push injection technique described in this FS. The purpose of the second phase of the IRAC program is to test the effectiveness of the preferred technology from the first phase as it is implemented in a full-scale manner, while serving to destroy a large amount of VOC mass.

The second phase of the IRAC will involve a series of direct-push potassium permanganate injections performed in the southeast area of the VOC plume at IRP Site 2. This area has the highest VOC concentrations in Shallow Zone groundwater at the site.

5.3 IRP Site 9

5.3.1 IRP Site 9 - Individual Analysis of Alternatives

The following presents an evaluation of the RA alternatives for IRP Site 9 against the evaluation criteria. The remedial alternatives evaluated for IRP Site 9 include:

- Alternative 1: No Action

- Alternative 2: MNA

- Alternative 3: In Situ Oxidation – Sodium Persulfate Injection with MNA

- Alternative 4: In Situ Oxidation – Ozone Sparging with MNA
- Alternative 5: Enhanced Bioremediation with MNA
- Alternative 6: In-Well Aeration with MNA

5.3.1.1 IRP Site 9 - Alternative 1: No Action

The following is an evaluation of the application of Alternative 1 at IRP Site 9 with respect to the criteria described in Section 5.1.

Overall Protection of Human Health and Environment. The No Action Alternative would not be protective of human health and the environment in the short term because the risks associated with Shallow Zone groundwater are not immediately reduced, either by treatment or by implementing restrictions that would prevent exposure site groundwater, such as institutional controls. Because contaminated Shallow Zone groundwater has the potential to migrate off-site, the No Action Alternative would not provide long-term protection of human health and the environment.

Compliance with ARARs. The No Action Alternative does not meet chemical-specific ARARs because benzene in Shallow Zone groundwater currently exceeds ARARs. Natural processes may not degrade benzene in IRP Site 9 Shallow Zone groundwater prior to migration off-site, and this alternative provides no mechanism for monitoring potential migration.

Long-Term Effectiveness and Permanence. The No Action Alternative would not provide long-term effectiveness and permanence. Remaining untreated benzene in Shallow Zone groundwater would pose too great a residual risk to human and environmental receptors.

Reduction of TMV Through Treatment. The No Action Alternative does not include treatment to reduce TMV. As a result, it is possible that benzene will migrate laterally off-site, as well as vertically to the underlying Deep Zone. Biodegradation of benzene in Shallow Zone groundwater may continue to occur as observed in the past, but without active monitoring it is impossible to ascertain if the degradation rate is rapid enough to prevent migration. If migration of the plume occurs more rapidly than degradation, the volume of hazardous material could actually increase.

Short-Term Effectiveness. The No Action Alternative would present short-term, human health risks associated with benzene in groundwater. However, these risks are no greater than the existing risks at IRP Site 9.

Implementability. The No Action Alternative would not incur implementation obstacles, and there are no associated O&M requirements.

Cost. No costs would be associated with implementing the No Action Alternative. However, because this alternative is ineffective at meeting the RAOs for the site, it would not be protective and therefore a low degree of cost reasonableness is associated with this alternative.

Treatment of Hot Spots. The No Action Alternative does not meet Oregon's requirement that hot spots in water be treated to below the significant adverse-effect level.

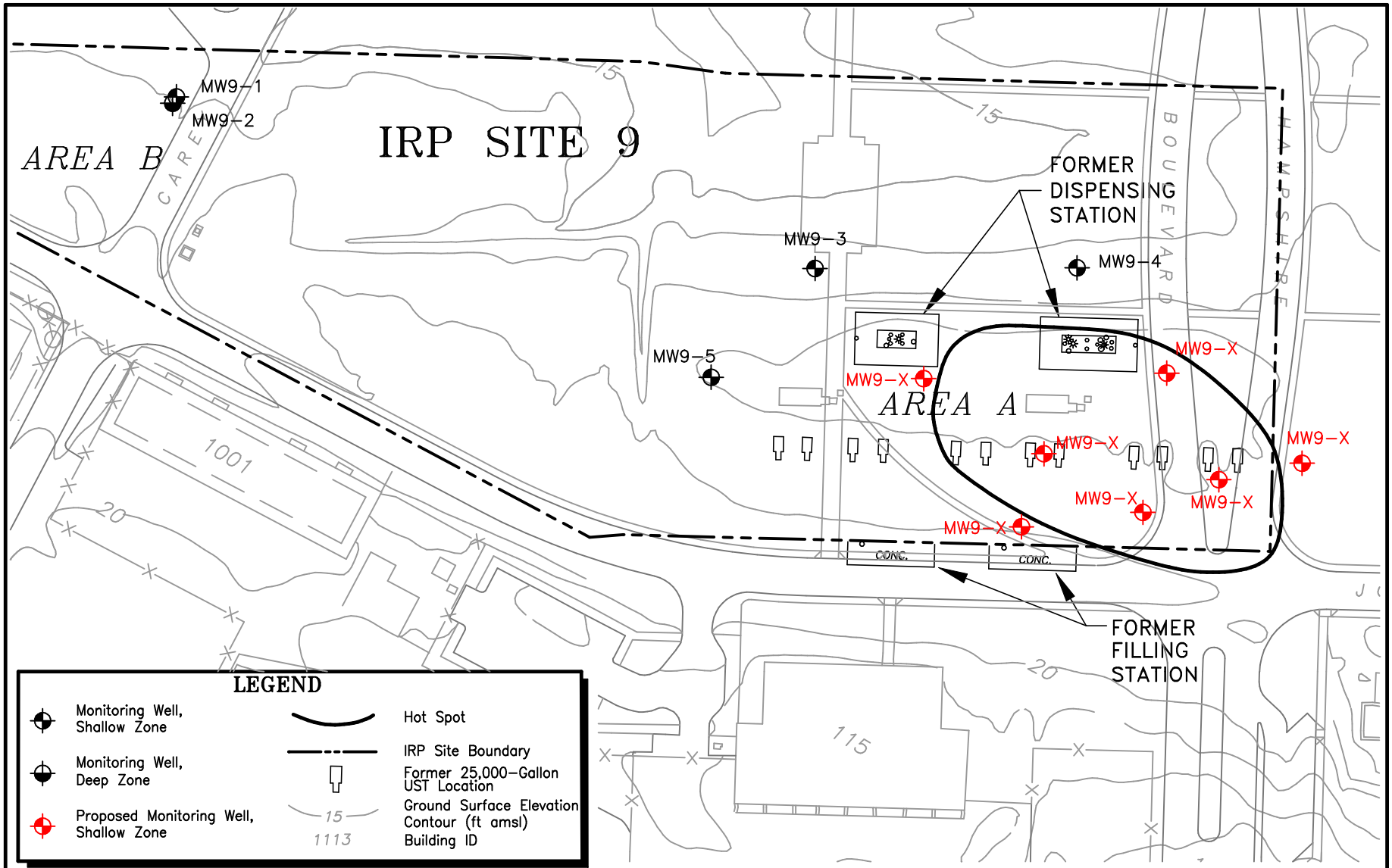
State Acceptance. The No Action Alternative would not be acceptable to ODEQ. Oregon requires that hot spots such as that present in groundwater at IRP Site 9 be treated to below the significant adverse-effect level.

Community Acceptance. The No Action Alternative is not expected to be acceptable to the community. The community is active at the Base in the form of a Restoration Advisory Board (RAB), and would not be accepting of leaving an area of groundwater impacted at the level of IRP Site 9 untreated.

5.3.1.2 IRP Site 9 - Alternative 2 : Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 2 at IRP Site 9 with respect to the criteria described in Section 5.1. Figure 5-6 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. The MNA Alternative would be protective of human health and the environment in the short term. Near-future exposure to groundwater with unacceptable risk is prevented through the implementation of institutional and engineering controls at the Base. Groundwater with benzene concentrations above unacceptable risk levels has not migrated to any off-site receptors, and is not expected to in the near future. However, there is long-term risk associated with off-site migration of groundwater containing benzene. During the Natural Attenuation Evaluation conducted as part of the RI (ERM 2001a), it was concluded that natural biodegradation at IRP Site 9 has become stagnant. Because of this, it is



IRP SITE 9

ALTERNATIVE 2
MONITORED NATURAL ATTENTUATION
LOCATION OF MONITORING WELLS

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FIGURE 5-6

possible that Shallow Zone groundwater containing benzene levels above the RAOs has the potential to migrate off-site. The MNA Alternative, therefore, would not provide long-term protection of human health and the environment.

Compliance with ARARs. The MNA Alternative does not meet chemical-specific ARARs because benzene in Shallow Zone groundwater currently exceeds ARARs, and is not expected to naturally degrade to acceptable levels within a reasonable timeframe, as compared to other methods.

Long-Term Effectiveness and Permanence. The MNA Alternative may provide long-term effectiveness and permanence due to eventual natural degradation of benzene below RAOs. However, this is unlikely to occur within a reasonable time period. It is uncertain if this alternative will treat groundwater to appropriate levels prior to migrating off-site, thereby violating the first RAO, and creating the potential need to replace this remedy.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV Through Treatment. The MNA Alternative may reduce the TMV of benzene at IRP Site 9 as natural degradation occurs. The toxicity of Shallow Zone groundwater may slowly diminish as concentrations decrease, but the mobility will remain unchanged. The volume of contaminated groundwater may actually increase due to potential further downgradient and vertical migration of slowly degrading benzene.

Short-Term Effectiveness. The MNA Alternative would present short-term human health risks associated with benzene in groundwater at IRP Site 9. The short-term risks associated with this alternative are a result of the expected time required to meet treatment objectives, expected to possibly exceed 30 years. Within that period, groundwater containing unacceptable benzene concentrations may migrate off-site, thereby violating the first RAO and presenting risk to off-site receptors.

The institutional and engineering controls implemented under this alternative are expected to prevent unacceptable risk to on-site receptors, including Base workers and workers implementing this RA.

Implementability. The MNA Alternative would not incur implementation obstacles. The additional proposed wells will ensure the ability to monitor the effectiveness of this alternative, and the technologies used for this alternative are readily available and implementable.

Cost. Capital and O&M costs associated with Alternative 2 are summarized in Table B-8, and detailed in Table B-9. Direct and indirect capital costs for this alternative are estimated to be $64,500, and include equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first year is estimated to be $40,400, which assumes quarterly groundwater sampling. The O&M cost for the following 30 years is estimated to be $10,100 per year, which assumes annual groundwater sampling. The net present value of 31 years of O&M costs is $159,700, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 2 is $292,000, including a 30 percent contingency. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Because Alternative 2 is not expected to meet the RAOs for the site within a reasonable time period, this alternative is not considered protective and therefore has a low degree of cost reasonableness.

Treatment of Hot Spots. Although MNA is considered a treatment technology by the State of Oregon, it is not expected to treat the hot spot at IRP Site 9 to concentrations below the significant adverse-effect level in a timely manner. The hot spot, defined by the extent of contaminants above respective, significant adverse-effect levels, could potentially expand due to migration of the source area.

Treatment of Hot Spots. Although MNA is considered a treatment technology by the State of Oregon, the hot spot at IRP Site 2 is not expected to be treated to concentrations below the significant adverse-effect level in a timely manner under this alternative. The hot spot, defined by the extent of contaminants above respective significant adverse-effect levels, could potentially expand due to migration of the source area.

State Acceptance. The Natural Attenuation Alternative would not be expected to be acceptable to ODEQ. Oregon requires that hot spots such as that present in groundwater at IRP Site 9 be treated within a reasonable timeframe and this is not expected to occur using the Natural Attenuation alternative.

Community Acceptance. The Natural Attenuation Alternative is not expected to be acceptable to the community due to the expected duration required to meet treatment goals.

5.3.1.3 IRP Site 9 - Alternative 3: In Situ Oxidation – Sodium Persulfate Injection with Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 3 at IRP Site 9 with respect to the criteria described in Section 5.1. Figure 5-7 depicts the layout of the primary components of this alternative.

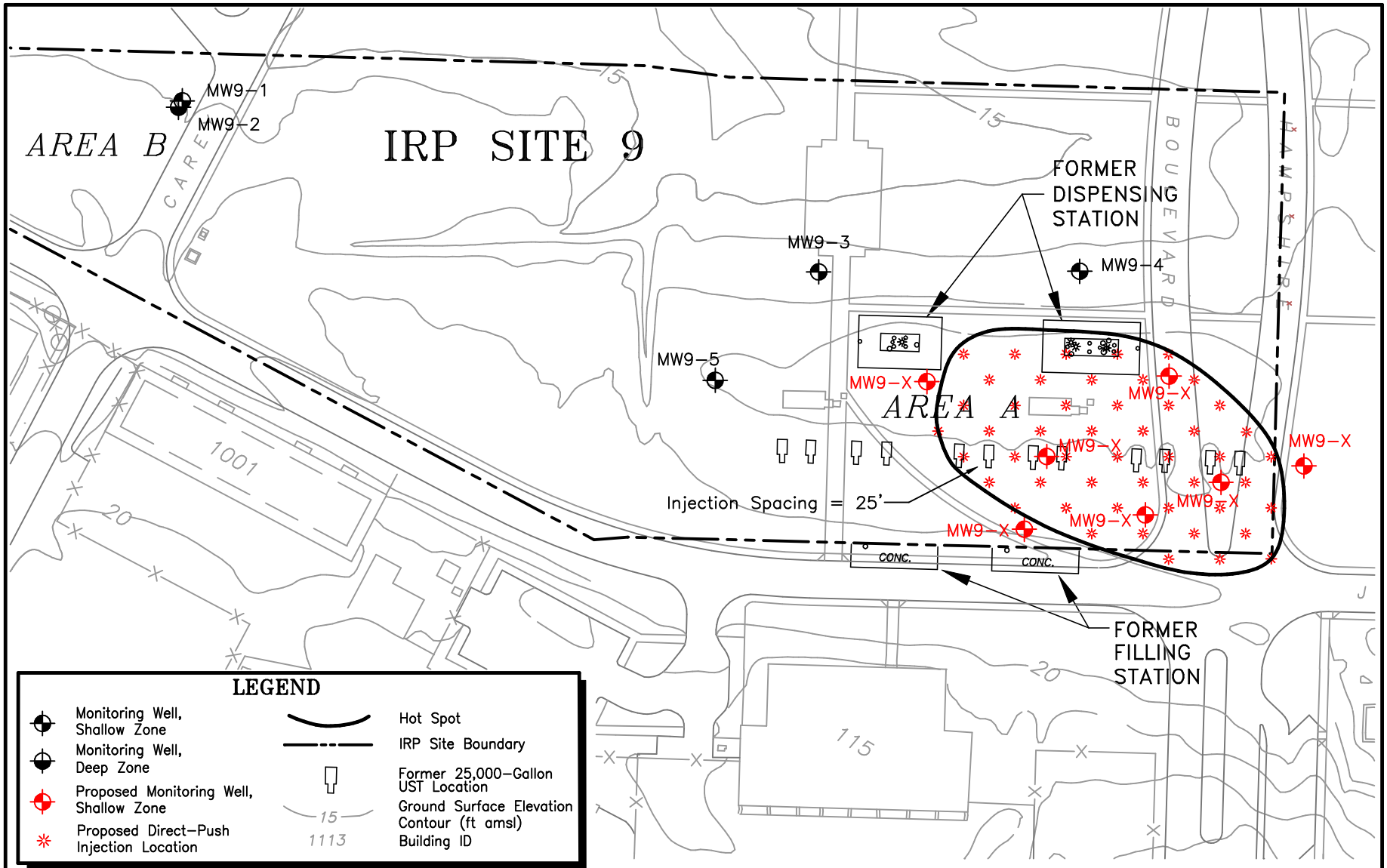
Overall Protection of Human Health and Environment. This alternative is expected to significantly reduce the benzene concentrations from IRP Site 9 Shallow Zone groundwater, and the associated risks of exposure to these compounds. The level of benzene reduction via sodium persulfate oxidation is uncertain, as this technology has not been tested on Base groundwater.

Compliance with ARARs. This alternative is expected to effectively reduce benzene concentrations in IRP Site 9 Shallow Zone groundwater. Any injection activities must be coordinated through the Oregon UIC program described in Section 4.1.3.6. Compliance with this program is expected to be achievable through registration, monitoring, and reporting.

Long-Term Effectiveness and Permanence. The residual risk posed by IRP Site 9 Shallow Zone groundwater would be reduced by this alternative because the contaminants associated with the risks would be destroyed. After the completion of this alternative, extended groundwater monitoring would be required to verify attainment of the RAOs.

The contaminants in the downgradient areas of the site treated by MNA are expected to be destroyed within a reasonable timeframe, due to enhanced conditions from upgradient persulfate injection.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land-use scenarios. However, care must be taken to ensure that the



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ALTERNATIVE 3
IN SITU OXIDATION-SODIUM PERSULFATE INJECTION WITH MONITORED NATURAL ATTENTUATION

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FIGURE 5-7

controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV through Treatment. The use of sodium persulfate oxidation and MNA to treat benzene in groundwater will result in reduced TMV of hazardous materials in IRP Site 9 groundwater. This reduction is performed through chemical and biological destruction, rather than transfer of contaminants from one media to another. The treatment process is irreversible and would result in the production of only harmless byproducts.

Short-Term Effectiveness. Workers performing the injection will be in contact with sodium persulfate in solid or dissolved form. Worker exposure would be minimized by the use of appropriate health and safety personal protective equipment.

Adverse effects on groundwater used for drinking or irrigation is not expected. The oxidative effects of the sodium persulfate would diminish with time, as it reacts with organic material in the subsurface.

Risks associated with VOCs in groundwater are quickly reduced due to the rapid treatment resulting from persulfate oxidation. Destruction of VOCs in areas treated by sodium persulfate is expected to be complete within 1 to 2 years.

Implementability. The implementability of this alternative may be inhibited by site geology, as preferential flow paths and areas of low conductivity will determine the flow of the injected sodium persulfate. As such, the injected material may not reach limited regions of an aquifer; however, this can be overcome by reducing the grid spacing for the direct-push injection, and staggering the locations of later injections.

The injection of sodium persulfate will require coordination with the ODEQ UIC program, which may create scheduling delays due to the ODEQ's review and public participation requirements.

The technical aspects of the actual direct-push injection of sodium persulfate are basic, and should not present constraints.

Cost. Capital and O&M costs associated with Alternative 3 are summarized in Table B-8, and detailed in Table B-10. Direct and indirect capital costs for this alternative are estimated to be $319,000, and include equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for

the first 2 years is estimated to be $80,800, which assumes quarterly groundwater sampling. The O&M cost for the following 5 years is estimated to be $10,100 per year, which assumes annual groundwater sampling. The net present value of 7 years of O&M costs is $121,700, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 3 is $573,000, including a 30 percent contingency. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to a degree of +50 to –30 percent.

Alternative 3 is the least expensive of the alternatives that employ active remedial measures. Additionally, this alternative is expected to meet the RAOs for the site within a reasonable time period and is thus protective. As a result, this alternative has a high degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat the benzene at IRP Site 9 to below significant adverse effect levels within a reasonable timeframe.

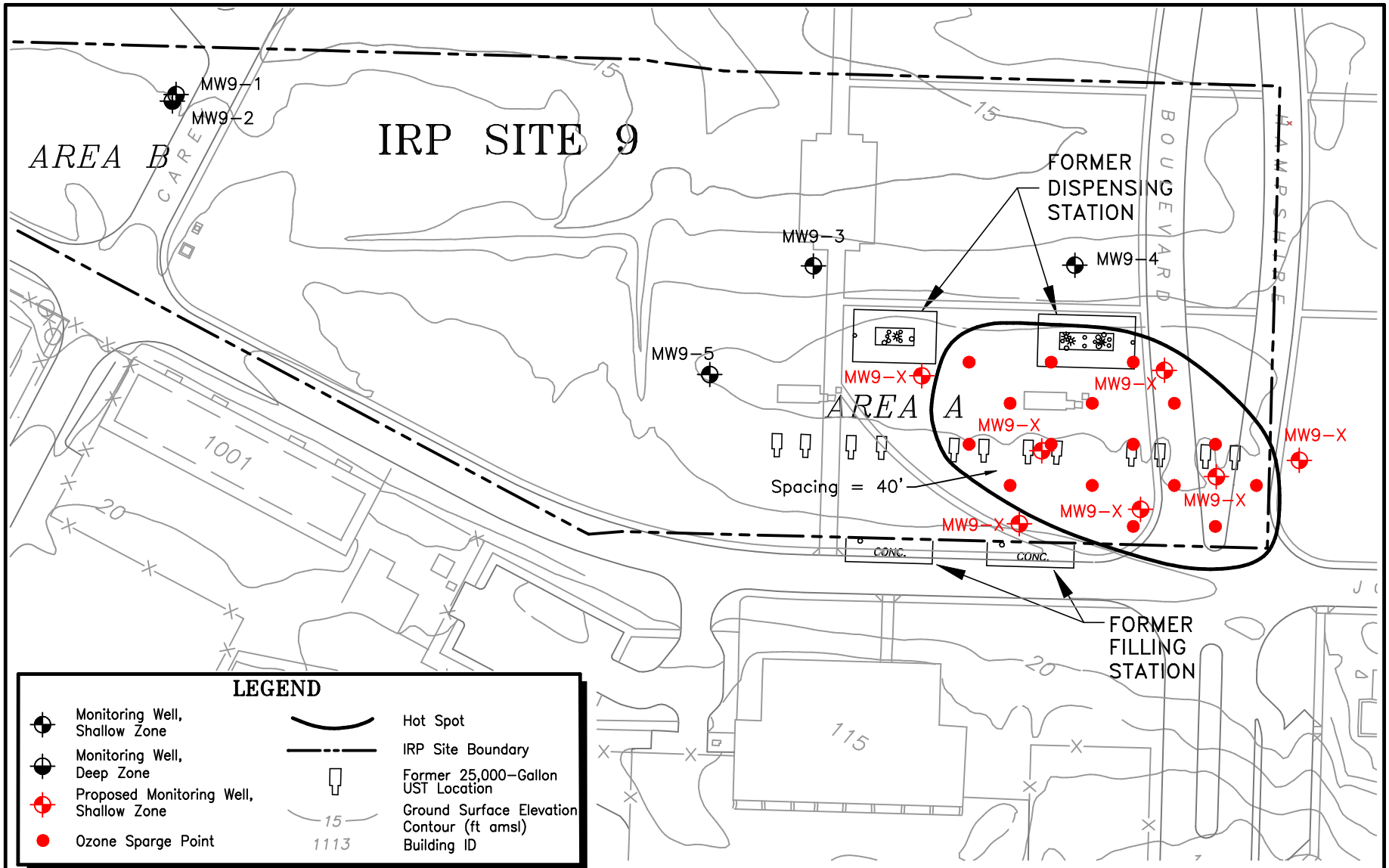
State Acceptance. The use of in situ oxidation to treat groundwater at the Base has been accepted by ODEQ for relatively small-scale implementation and is expected to be acceptable for full-scale application. However, ODEQ approval of a large scale use of sodium persulfate injection is likely to be contingent on an appropriate monitoring and reporting plan to ensure compliance with the UIC program.

Community Acceptance. The use of sodium persulfate is expected to have some community resistance since it relies on the injection of a foreign material into the groundwater. An appropriate monitoring and reporting system is an important component of this alternative to allow the public the opportunity to monitor water quality during the remedial action.

5.3.1.4 IRP Site 9 - Alternative 4: In Situ Oxidation – Ozonation with Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 4 at IRP Site 9 with respect to the criteria described in Section 5.1. Figure 5-8 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. This alternative is expected to effectively remove or significantly reduce the benzene concentrations from IRP Site 9 groundwater. The risks associated with benzene exposure would be reduced to an acceptable level, based on current and future land use.



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ALTERNATIVE 4
IN SITU OXIDATION-OZONATION WITH MONITORED NATURAL ATTENTUATION

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FIGURE 5-8

Compliance with ARARs. This alternative is expected to effectively reduce benzene concentrations in Shallow Zone groundwater to below the levels set by chemical-specific ARARs. Any injection activities must be coordinated through the Oregon UIC program described in Section 4.1.3.6. Compliance with this program is expected to be achievable through registration, monitoring, and reporting.

Long-Term Effectiveness and Permanence. The residual risk posed by IRP Site 9 Shallow Zone groundwater would be reduced by this alternative because the contaminants associated with the risks are destroyed. Groundwater monitoring would be required for an extended period after the completion of this alternative to verify attainment of the RAOs.

The contaminants in the downgradient areas of the site treated by MNA are expected to be destroyed within a reasonable timeframe, due to enhanced conditions from upgradient ozonation. However, if long-term monitoring indicates that benzene in this area has not degraded at an acceptable rate, expansion of the area of ozonation would be considered.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV Through Treatment. The use of ozonation will reduce the TMV of benzene in IRP Site 9 groundwater via chemical destruction, rather than transfer of contaminants from one media to another. This treatment process is irreversible, and would result in the production of only harmless byproducts.

Short-Term Effectiveness. Ozone is a strong oxidant and care must be taken to prevent worker or Base employee exposure to ozone generated for injection. This would include periodic monitoring of ozone in workspace air, and enclosing and locking the ozone generator and sparge wellheads to prevent tampering.

Adverse effects on groundwater used for drinking or irrigation purposes is not expected. The oxidative effects of ozone are short lived in groundwater.

Risks associated with benzene in groundwater are quickly reduced due to the rapid treatment resulting from ozonation. Destruction of VOCs in

areas treated by ozonation is expected to be complete within approximately 3 years.

Implementability. Implementability issues associated with this alternative include installation of sub-grade piping across Base roads (if necessary), avoidance of underground utilities, and connection to Base utilities. The installation and monitoring of an ozone sparging system would require extensive labor as compared to technologies that simply involve injection and monitoring.

The implementability of this alternative may be inhibited by site geology, as preferential flow paths and areas of low conductivity will determine where sparged air will flow. This can usually be overcome by utilizing a pulsed sparging technique consisting of alternating periods of sparging and rest.

The injection of ozone will require coordination with the ODEQ UIC program, which could create scheduling delays due to ODEQ's review and public participation requirements.

Cost. Capital and O&M costs associated with Alternative 4 are summarized in Table B-8, and detailed in Table B-11. Direct and indirect capital costs for this alternative are estimated to be $570,700, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 3 years is estimated to be $309,900, which assumes quarterly groundwater sampling and 3 years of treatment system operation. The O&M cost for the following 5 years is estimated to be $10,100 per year, which assumes annual groundwater sampling. The net present value of 8 years of O&M costs is $350,800, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 4 is $1,198,000, including a 30 percent contingency. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Alternative 4 is expected to meet the RAOs for the site within a reasonable timeframe and is thus protective. However, Alternative 4 is the most expensive alternative, and therefore has a medium degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat the benzene at IRP Site 9 to below significant adverse-effect levels within a reasonable timeframe.

State Acceptance. The use of ozonation to treat groundwater at the Base has been accepted by ODEQ for relatively small-scale implementation and is expected to be acceptable for full-scale application. However, ODEQ approval of larger scale use of an injection technology is likely to be contingent on an appropriate monitoring and reporting plan to ensure compliance with the UIC program.

Community Acceptance. The use of ozonation is expected to have less community resistance than other injection technologies since it relies on the injection of a short-lived gas rather than a liquid. However, an appropriate monitoring and reporting system is still an important component of this alternative to allow the public the opportunity to monitor water quality during the remedial action.

5.3.1.5 IRP Site 9 - Alternative 5: Enhanced Bioremediation with Monitored Natural Attenuation

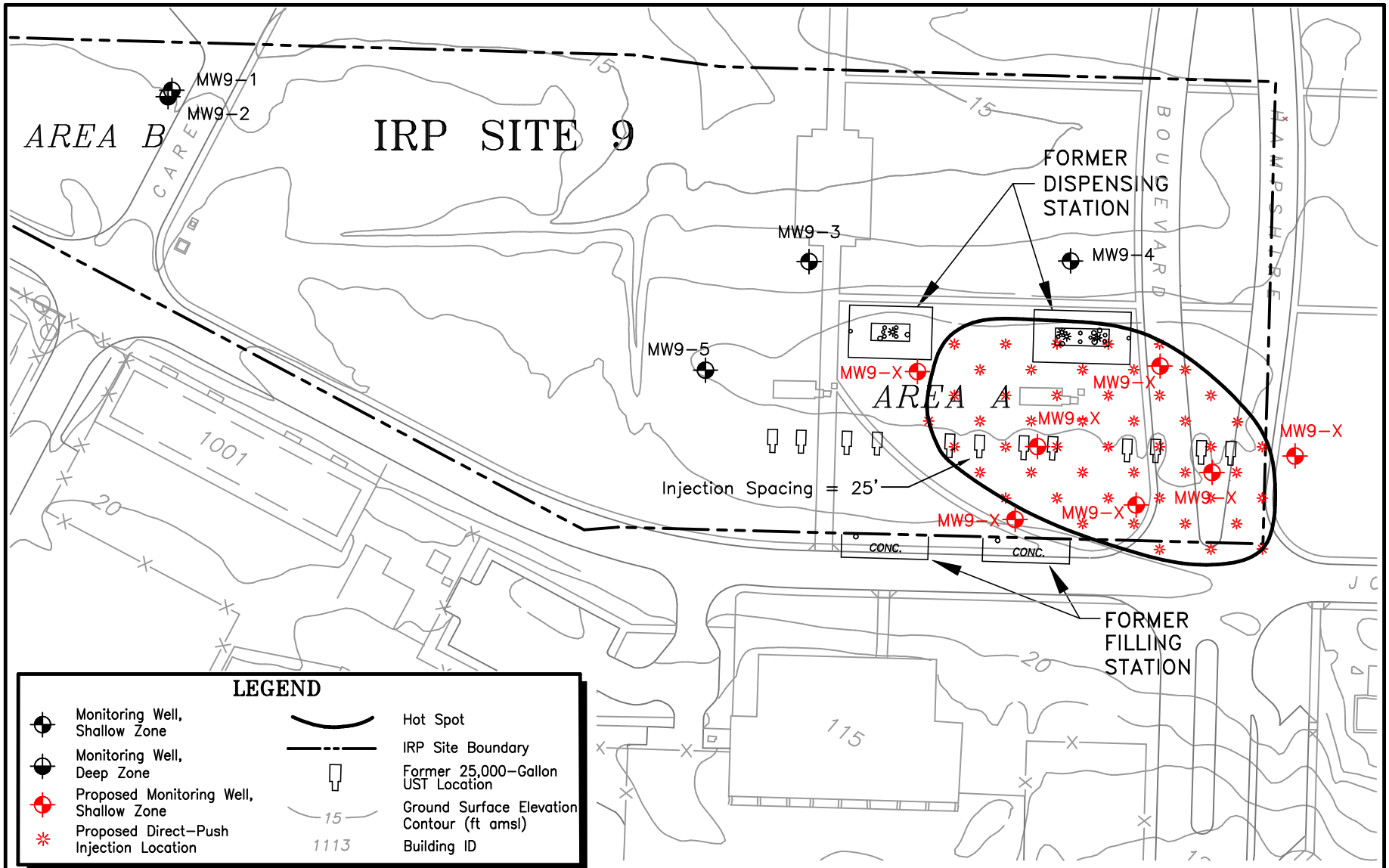
The following is an evaluation of the application of Alternative 5 at IRP Site 9 with respect to the criteria described in Section 5.1. Figure 5-9 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. This alternative is expected to effectively remove benzene from IRP Site 9 Shallow Zone groundwater, and the risks associated with exposure to this contamination. This alternative is expected to take longer than other alternatives because native microbes must acclimate to the enhanced environment following injection.

Compliance with ARARs. This alternative is expected to effectively reduce the concentration of benzene in Shallow Zone groundwater to below the levels set by chemical-specific ARARs. Any injection activities must be coordinated through the Oregon UIC program described in Section 4.1.3.6. Compliance with this program is expected to be achievable through registration, monitoring, and reporting.

Long-Term Effectiveness and Permanence. The residual risk posed by Shallow Zone groundwater at IRP Site 9 would be reduced by this alternative because the contaminants associated with the risks are degraded to harmless byproducts. Groundwater monitoring would be required for an extended period after the completion of this alternative to verify attainment of the RAOs.

The institutional and engineering controls implemented as part of this alternative would likely be reliable in the long term, based on the current



IRP SITE 9

ALTERNATIVE 5
ENHANCED BIOREMEDIATION
WITH MONITORED NATURAL ATTENTUATION

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FIGURE 5-9

and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV Through Treatment. Enhancing bioremediation in IRP Site 9 groundwater will reduce the TMV of benzene. This is performed through irreversible biological destruction, rather than transfer of contaminants among media.

Short-Term Effectiveness. This alternative is expected to take a short period to begin effective removal, thus delaying the reduction of risk. Natural biological activity at IRP Site 9 has been shown to be stagnant, and would require acclimation following injection of an enhancing product.

Groundwater containing unacceptable benzene concentrations has not migrated off Base, and is not expected to reach Base boundaries in the very near future. Also, the institutional and engineering controls used as part of this alternative would prevent benzene exposure at the site. These factors limit the added risks related to the delayed effectiveness of this alternative.

Implementability. No issues have been identified for the installation of this alternative. The materials would be injected using a direct-push method.

The treatment of groundwater with oxygen releasing materials relies more heavily on the flow of groundwater past the injection locations, than the flow of injected material into surrounding groundwater. The shallow gradient of groundwater at IRP Site 9 would serve to limit the rate of transfer of oxygen created by the injected material to the surrounding groundwater.

The injection of any oxygen releasing material will require coordination with the ODEQ UIC program. This will create scheduling delays due to ODEQ review and public participation requirements.

Cost. Capital and O&M costs associated with Alternative 5 are summarized in Table B-8, and detailed in Table B-12. Direct and indirect capital costs for this alternative are estimated to be $336,200, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 2 years is estimated to be $80,800, which assumes quarterly groundwater sampling. The O&M cost for the following 5 years is

estimated to be $10,100 per year, which assumes annual groundwater sampling. The net present value of 7 years of O&M costs is $121,700, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 5, including a 30 percent contingency, is $596,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Alternative 5 is one of the least expensive of the alternatives that employ active remedial measures. Additionally, this alternative is expected to meet the RAOs for the site within a reasonable time period, and is thus protective. As a result, this option has a high degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat benzene at IRP Site 9 to below significant adverse-effect levels within a reasonable timeframe.

State Acceptance. The use of enhanced bioremediation to treat groundwater at the Base has been accepted by ODEQ for relatively small-scale implementation and is expected to be acceptable for full-scale application.

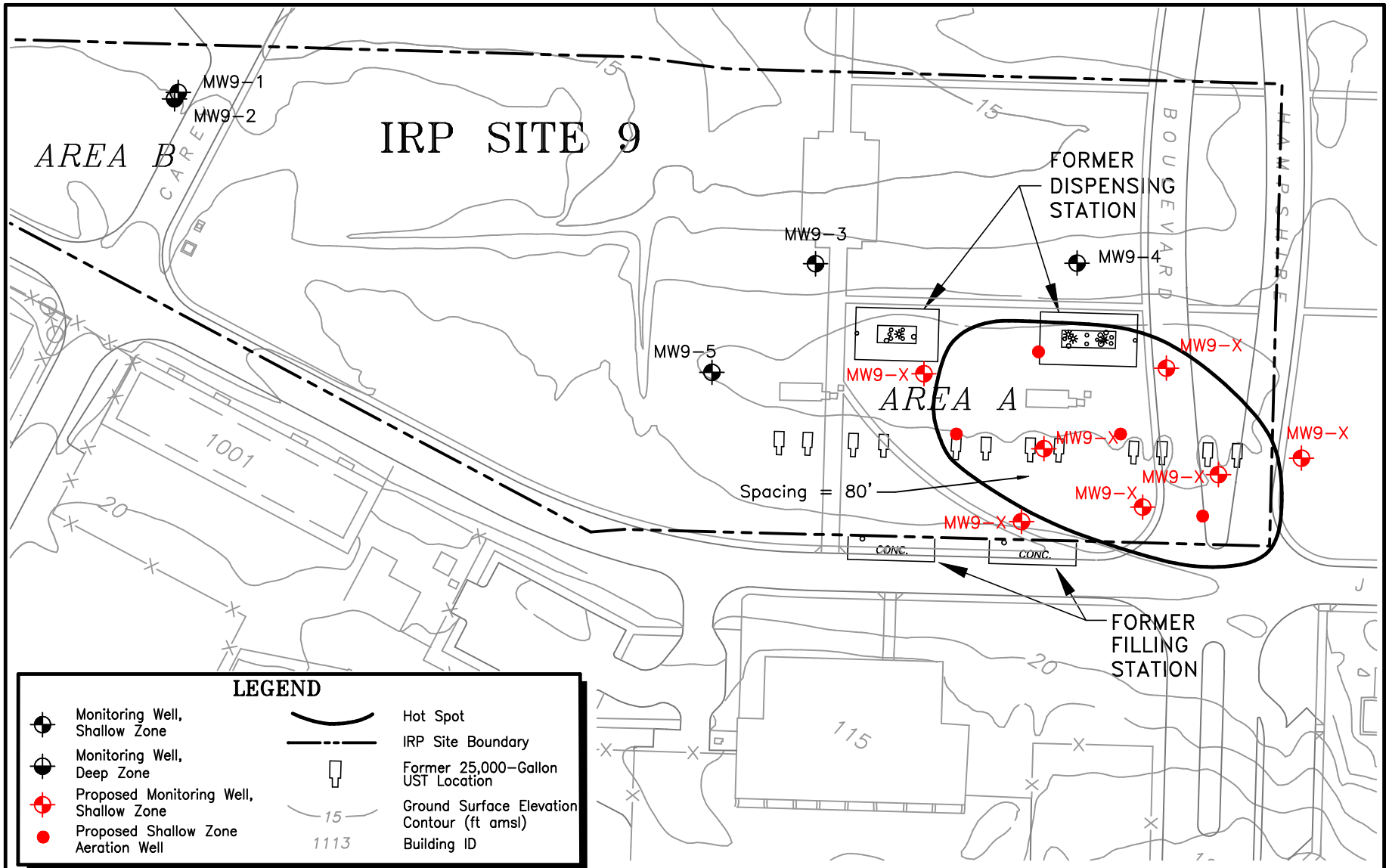
Community Acceptance. The use of enhanced bioremediation is not expected to have community resistance.

5.3.1.6 IRP Site 9 - Alternative 6: In-Well Aeration with Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 6 at IRP Site 9 with respect to the criteria described in Section 5.1. Figure 5-10 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. This alternative would reduce the risk posed by IRP Site 9 by reducing benzene concentrations in Shallow Zone groundwater, as well as the potential for contaminated Shallow Zone groundwater to migrate to off-site receptors.

Compliance with ARARs. This alternative is expected to reduce benzene in IRP Site 9 groundwater to below chemical-specific ARARs. Groundwater within the zone of active treatment by in-well aeration is expected to be rapidly treated to concentrations below ARARs. MNA is expected to degrade benzene in downgradient groundwater outside of the



IRP SITE 9

ALTERNATIVE 6
IN-WELL AERATION
WITH MONITORED NATURAL ATTENTUATION

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FIGURE 5-10

radius of influence of the in-well aeration system to below ARARs, although at a rate slower than that within the active treatment zone.

Long-Term Effectiveness and Permanence. The residual risk posed by IRP Site 2 would be reduced by this alternative because the risk posed by benzene in Shallow Zone groundwater would be significantly reduced. Groundwater monitoring would be required beyond the operation of the in-well aeration system to verify attainment of the cleanup goals.

The contaminants in the downgradient areas of the site treated by MNA are expected to be destroyed within a reasonable timeframe, due to enhanced aerobic conditions from upgradient aeration. However, if long-term monitoring indicates that VOCs in this area are not degrading at an acceptable rate, expansion of the aeration system to actively treat this area would be considered.

The institutional and engineering controls implemented as part of this alternative would likely be reliable in the long term, based on current and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV through Treatment. Unlike other treatment technologies discussed in this FS, this technology is based on the transfer of contaminants among media, rather than destruction. Transferring benzene from the groundwater to the activated carbon reduces the mobility and volume of the contaminants. The reduction of toxicity of the contaminants would depend on the final disposition of the spent carbon. For example, if the spent carbon is to be disposed of at a landfill, toxicity would not be reduced.

Short-Term Effectiveness. It is difficult to estimate with accuracy the time required to meet the remediation goal; however, the in-well aeration system should reduce benzene concentrations in groundwater to below treatment goals within 2 years. The area to be treated by MNA would not experience reductions at the same rate as that within the in-well aeration area. However, the risks associated with this area are much lower.

Implementability. Implementability issues identified with this alternative include installation of sub-grade piping across Base roads (if necessary), avoidance of underground utilities, and connection to Base utilities.

This technology has been shown to effectively remove VOCs from groundwater in locations with adequate subsurface flow characteristics.

However, it is still considered an innovative technology, and has not been tested as extensively as some others.

Cost. Capital and O&M costs associated with Alternative 6 are summarized in Table B-8, and detailed in Table B-13. Direct and indirect capital costs for this alternative are estimated to be $469,200, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 3 years is estimated to be $316,200, which assumes quarterly groundwater sampling and 3 years of treatment system operation. The O&M cost for the following 5 years is estimated to be $10,100 per year, which assumes annual groundwater sampling. The net present value of 8 years of O&M costs is $357,100, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 6, including a 30 percent contingency, is $1,075,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to -30 percent.

Alternative 6 is expected to meet the RAOs for the site within a reasonable time period, and would therefore be considered protective. This alternative is one of the most expensive alternatives, and therefore has a medium degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat benzene at IRP Site 9 to below significant adverse-effect levels within a reasonable timeframe.

State Acceptance. The use of in-well aeration to treat groundwater at the Base would be expected to be acceptable by ODEQ for full-scale implementation. There are no significant water quality issues related to implementation of this technology, which is a major issue with ODEQ.

Community Acceptance. The use of in-well aeration to treat groundwater at the Base would be expected to be acceptable by community residents.

5.3.2 IRP Site 9 - Comparative Analysis of Alternatives

As discussed, the above-detailed evaluation comprised an individual analysis the six RA alternatives for IRP Site 9, with respect to protectiveness, compliance with ARARs, long-term effectiveness and permanence, reduction of TMV through treatment, short-term effectiveness, implementability, cost, and treatment of hot spots. Below, the alternatives are compared and rated based on how well each satisfies

the evaluation criteria. Because all of the action alternatives involve the completion of a set of common tasks, the following comparative analysis will focus only on those actions that are in addition to the common tasks.

5.3.2.1 IRP Site 9 - Overall Protection of Human Health and the Environment

Chemically impacted groundwater at IRP Site 9 does not pose immediate risk to human health and the environment because it is not currently used. Therefore, all of the alternatives are equally protective in the immediate timeframe. However, since the exposure pathway used for this FS considers migration of impacted groundwater to other water bodies, such as deeper aquifers or surface water, the most protective alternative would be that which would most reliably, completely, and quickly remove those chemicals impacting groundwater at IRP Site 9.

Alternatives 1 and 2 are not expected to reliably, completely, or quickly reduce the benzene concentrations in IRP Site 9 groundwater to acceptable levels. The reliability of Alternative 6 is uncertain. Although a similar technology was shown to remove VOCs from groundwater extracted from the Shallow Zone at IRP Site 2, the technology proposed for Alternative 6 requires further testing. Alternatives 4 and 5 are expected to reliably and quickly reduce VOC concentrations.

The alternative most protective of human health and the environment is Alternative 3. This alternative is expected to reliably and quickly remove risks associated with benzene-impacted groundwater at IRP Site 9. Sodium persulfate has not been tested on groundwater containing benzene at the Base, but benzene is expected to be receptive to this oxidation mechanism.

5.3.2.2 IRP Site 9 - Compliance with ARARs

The ARAR that governs this FS is the federal MCL for each of the VOCs impacting groundwater, as is the case for benzene in IRP Site 9 groundwater. Alternatives 1 and 2 would not likely reduce benzene concentrations to below the MCL of 5 µg/l, and therefore would not comply with the ARAR for this compound.

Alternatives 4 and 6 have the potential to reduce benzene concentrations to below the respective ARARs.

Alternatives 3 and 5 would most reliably treat VOCs in groundwater to below ARARs. Because of its ability to aerobically degrade and the

presence of additional carbon sources (petroleum hydrocarbons) at IRP Site 9, enhanced aerobic bioremediation is expected to successfully reduce benzene to below its MCL. Benzene is also expected to effectively treated by sodium persulfate oxidation.

5.3.2.3 IRP Site 9 - Long-Term Effectiveness and Permanence

Alternatives 1 and 2 would not provide long-term effectiveness. These alternatives are not expected to reduce concentrations of benzene in groundwater at IRP Site 9 to below the significant adverse-effect level.

Alternatives 3, 4, and 5 would provide equal long-term effectiveness, provided RAOs are equally met as well. These alternatives utilize technologies that provide in situ destruction of contaminants. These technologies are not reversible and do not pose additional risks after treatment goals are met.

Alternative 6 would provide similar long-term effectiveness as that provided by Alternative 3, 4, and 5. However, rather than destroying the contaminants in situ, Alternative 6 uses a technology that strips VOCs from groundwater, and moves them above ground through sparged air, where the VOCs are subsequently destroyed. This technology is also irreversible, and poses no additional risks after treatment goals are met.

Alternative 3 and 5 are the most effective alternatives in the long term because they are the alternatives most likely to be able to reach treatment goals, therefore not requiring replacement.

5.3.2.4 IRP Site 9 - Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives 1 and 2 will not significantly reduce TMV of benzene-impacted groundwater at IRP Site 9. Some reduction of toxicity may occur through reduction of benzene concentration at localized areas. However, the mobility and volume would likely remain unchanged, or could possibly increase.

Alternatives 3, 4, 5, and 6 are expected to effectively reduce the TMV of VOC-impacted groundwater at IRP Site 2. However, Alternative 3 and 5 are expected to provide the greatest reduction.

5.3.2.5 IRP Site 9 - Short-Term Effectiveness

The short-term effectiveness of Alternatives 1 and 2 is unacceptably low, based on the length of time required to reduce benzene concentrations in

IRP Site 9 groundwater. Groundwater containing unacceptable levels of benzene could possibly migrate off-site, or down to the CRSA, within the time required to reach cleanup goals under these alternatives.

Alternatives 3, 4, 5, and 6 all provide sufficient, short-term effectiveness. These alternatives will significantly reduce VOC concentrations in groundwater in a relatively quick fashion. Alternatives 3, 4, and 5 pose slight threats to workers in the form of exposure to the injection material used for each alternative. These threats could be controlled by the use of health and safety measures. No threats to workers are expected during implementation of Alternative 6, beyond the typical mechanical dangers associated with well drilling and installation of machinery.

5.3.2.6 IRP Site 9 - Implementability

Alternatives 1 and 2 are the easiest alternatives to implement. Alternative 1 requires no action, and Alternative 2 requires only installation of additional monitoring wells, and periodic monitoring of VOCs and natural attenuation parameters. However, the reliability of these alternatives is questionable, and it would be expected that they would require replacement at a later date.

The next easiest alternatives to implement are Alternatives 3 and 5. These alternatives involve the direct-push injection of a treatment material, and progress monitoring. Neither of these alternatives are expected to require replacement.

The implementation of Alternatives 4 and 6 involve the construction of several, complex sparge wells, and a system of piping, compressors, and controls. The systems for these alternatives would require periodic monitoring, trouble shooting, and maintenance.

5.3.2.7 IRP Site 9 - Cost

Alternative 1 and 2 are the least expensive alternatives; however these alternatives fail to satisfy the protectiveness criterion because they are not expected to meet the site RAOs within a reasonable time period. These alternatives are therefore not cost reasonable. Alternatives 4 and 6 are expected to meet the site RAOs within a reasonable time period, however these are two of the most expensive alternatives. Alternatives 3 and 5 meet the same level of protectiveness as Alternatives 4 and 6, but are less expensive. Alternative 3 and 5 are therefore the most cost reasonable alternatives.

5.3.2.8 IRP Site 9 - Treatment of Hot Spots

Alternatives 1 and 2 are not expected to effectively treat the hot spot of contamination in IRP Site 9 groundwater. The implementation of either of these alternatives would potentially allow the extent of this hot spot to increase.

Alternatives 3, 4, 5, and 6 are capable of treating VOCs to below the significant adverse-effect levels. However, the expected reliability of Alternative 3 is greater than the other alternatives.

5.3.2.9 IRP Site 9 – State Acceptance

Alternatives 1 and 2 are not expected to effectively treat hot spots of contamination in groundwater at IRP Site 9 and therefore are not expected to be acceptable to ODEQ. All of the remaining alternatives would likely reduce the size of the hot spots at IRP Site 9 through treatment as required by ODEQ. However, the use of sodium persulfate injection would be scrutinized by ODEQ the most due to the injection of an oxidizing fluid into the groundwater.

5.3.2.10 IRP Site 9 – Community Acceptance

Alternatives 1 and 2 are not expected to be acceptable to the community because they are not expected to treat hot spots of contamination in groundwater at IRP Site 9 within a reasonable timeframe.

All of the remaining alternatives would likely reduce the size of the hot spots at IRP Site 9 through treatment and should generally be acceptable to community residents. However, for Alternative 3 using sodium persulfate injection it will be important to implement a monitoring program that will sufficiently allow the public to review water quality data.

5.3.3 IRP Site 9 - Preferred Alternative

Alternative 3 is the preferred alternative because it best satisfies the protectiveness criteria, and most of the remedy-selection balancing factors. Alternative 3 involves direct-push injection of sodium persulfate through the vertical extent of the Shallow Zone, combined with MNA. This alternative also includes the implementation of the common tasks

described in Section 4.5.2. By implementation of Alternative 3, the following achievements are expected:

- Human health and the environment within the locality of facility would be protected over the long term.
- The residual risk associated with VOCs in groundwater remaining after completion of this alternative would be acceptable, as described in Section 6.2.
- Base workers would be protected from exposure to VOCs in groundwater through the use of institutional and engineering controls.
- In situ oxidation using sodium persulfate would be one of the most cost-effective means of reducing concentrations of benzene in IRP Site 9 groundwater.

5.4 IRP Site 11

5.4.1 IRP Site 11 - Individual Analysis of Alternatives

The following presents an evaluation of the RA alternatives for IRP Site 11 against the evaluation criteria. The remedial alternatives evaluated for IRP Site 11 include:

- Alternative 1: No Action
- Alternative 2: MNA
- Alternative 3: In Situ Oxidation – Potassium Permanganate Injection with MNA
- Alternative 4: In Situ Oxidation – Ozone Sparging with MNA
- Alternative 5: Enhanced Bioremediation with MNA
- Alternative 6: In-Well Aeration with MNA

5.4.1.1 IRP Site 11 - Alternative 1: No Action

The following is an evaluation of the application of Alternative 1 at IRP Site 11 with respect to the criteria described in Section 5.1.

Overall Protection of Human Health and Environment. The No Action Alternative would not be protective of human health and the environment in the short-term, because the risks associated with Shallow Zone and Deep Zone groundwater are not immediately reduced, either by treatment or by implementing restrictions that would prevent exposure site groundwater, such as institutional controls. Because contaminated Shallow Zone and Deep Zone groundwater has the potential to migrate off-site, the No Action Alternative would not provide long-term protection of human health and the environment.

Compliance with ARARs. The No Action Alternative would not meet chemical-specific ARARs, because several chlorinated VOCs in Shallow Zone and Deep Zone groundwater currently exceed ARARs. The No Action Alternative would potentially reduce VOC concentrations to below respective ARARs in downgradient areas of IRP Site 11 due to natural processes. However, the higher concentration VOCs in the upgradient area of IRP Site 11 are not expected to naturally degrade to below ARARs within a reasonable timeframe.

Long-Term Effectiveness and Permanence. The No Action Alternative would not provide long-term effectiveness and permanence, because the residual risk to human and environmental receptors remaining from untreated chlorinated VOCs in Shallow Zone and Deep Zone groundwater is too great.

Reduction of TMV Through Treatment. The No Action Alternative does not include any treatment to reduce TMV. As a result, it is possible that chlorinated VOCs would continue to migrate laterally and vertically, and eventually reach off-site receptors. Biodegradation of TCE in Shallow Zone groundwater may continue to occur as observed in the past, but the natural degradation of lower-order chlorinated ethenes (cis-1,2-DCE and VC) in Shallow Zone and Deep Zone groundwater is not expected to be significant. The degradation is expected to be slower than migration, thereby increasing the volume of contaminated groundwater.

Short-Term Effectiveness. The No Action Alternative would present short-term, human health risks associated with chlorinated VOCs in groundwater at IRP Site 2. However, these risks are no greater than the existing risks at the site.

Implementability. The No Action Alternative would not incur implementation obstacles. In addition, there are no O&M requirements for the alternative.

Cost. No costs would be associated with implementing the No Action Alternative. Because this alternative is not effective in meeting the RAOs for the site, and is therefore not protective, it has a low degree of cost reasonableness.

Treatment of Hot Spots. The No Action Alternative does not meet Oregon's requirement that hot spots of contamination be treated to below the significant adverse-effect level.

State Acceptance. The No Action Alternative would not be acceptable to ODEQ. Oregon requires that hot spots such as that present in groundwater at IRP Site 11 be treated to below the significant adverse-effect level.

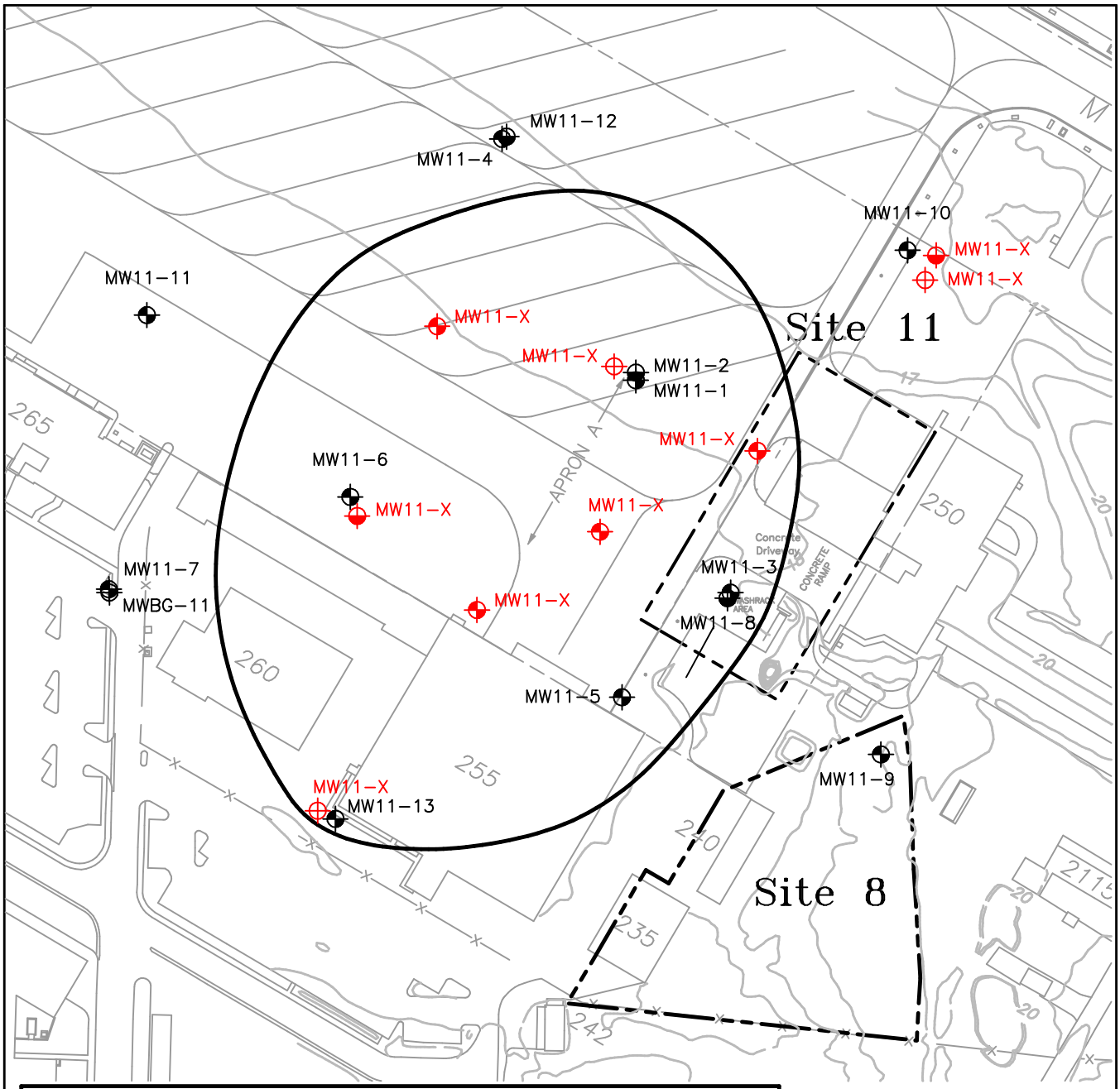
Community Acceptance. The No Action Alternative is not expected to be acceptable to the community. The community is active at the Base in the form of a Restoration Advisory Board (RAB), and would not be accepting of leaving an area of groundwater impacted at the level of IRP Site 11 untreated.

5.4.1.2 IRP Site 11 - Alternative 2: Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 2 at IRP Site 11 with respect to the criteria described in Section 5.1. Figure 5-11 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. The MNA Alternative would be protective of human health and the environment in the short-term. Near-future exposure to groundwater with unacceptable risk is prevented through institutional and engineering controls implemented at the Base. Groundwater with VOC concentrations above unacceptable risk levels has not migrated to any off-site receptors and is not expected to do so in the near future. However, there is long-term risk associated with off-site migration of groundwater containing VOCs.

During the Natural Attenuation Evaluation that was conducted as part of the RI (ERM 2001a) it was concluded that the degradation rate of VC is very slow. Because of this, it is possible that Shallow Zone and Deep Zone groundwater containing levels of VC above the RAOs has the potential to migrate off-site. The MNA Alternative, therefore, would also not provide long-term protection of human health and the environment.



LEGEND

- Monitoring Well, Shallow Zone
- Monitoring Well, Deep Zone
- Monitoring Well, Columbia River Sand Aquifer
- Proposed Monitoring Well, Shallow Zone
- Proposed Monitoring Well, Deep Zone
- Proposed Monitoring Well, Columbia River Sand Aquifer
- Hot Spot
- IRP Site Boundary
- 270 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)

Note: Proposed wells are shown in red.

N

0 75 150

Scale in Feet

ERM

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IRP SITE 11
ALTERNATIVE 2
MONITORED NATURAL ATTENTUATION
LOCATION OF MONITORING WELLS

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FIGURE 5-11

Compliance with ARARs. The MNA Alternative does not meet chemical-specific ARARs because chlorinated VOCs in Shallow Zone and Deep Zone groundwater currently exceed ARARs and are not expected to naturally degrade to below levels determined by the chemical-specific ARARs within a time frame that is reasonable compared to that offered by other methods.

Long-Term Effectiveness and Permanence. The MNA Alternative may provide long-term effectiveness and permanence due to eventual natural degradation of VOCs below RAOs. However, this is unlikely to occur within a reasonable time period. It is uncertain if this alternative will treat groundwater to appropriate levels prior to migrating off-site, thereby violating the first RAO. This uncertainty creates the potential need to replace this remedy.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant if the ownership or leaseholder of the Base property changes.

Reduction of TMV Through Treatment. The MNA Alternative is not expected to significantly reduce the TMV of VOCs at IRP Site 11 within a reasonable timeframe. Natural biodegradation of lower order chlorinated ethenes cis-1,2-DCE and VC is not expected to be rapid. The toxicity of Shallow Zone and Deep Zone groundwater may be slowly reduced as areas of higher concentration VOCs are slowly treated. As VC is produced through reductive dechlorination of dichloroethene, the mobility will actually increase due to the increased solubility and decreased sorption tendency of VC in relation to its parent compounds. If natural degradation proves to be slower than the migration rate, the volume of contaminated groundwater may actually increase due to potential further downgradient and vertical migration of slowly degrading VOCs.

Short-Term Effectiveness. The MNA Alternative would present short-term human health risks associated with chlorinated VOCs in groundwater at IRP Site 11. The short-term risks associated with this alternative are a result of the expected duration required to meet treatment objectives. The required duration of MNA could exceed 30 years. Within that period, groundwater containing unacceptable concentrations of VOCs may migrate off-site, violating the first RAO and presenting risk to off-site receptors.

The institutional and engineering controls implemented under this alternative are expected to prevent unacceptable risk to on-site receptors, including base workers and workers implementing this RA.

Implementability. The MNA Alternative would not have implementation obstacles. The additional proposed wells will ensure the ability to monitor the effectiveness of this alternative. The technologies used for this alternative are readily available and implementable.

Cost. Capital and O&M costs associated with Alternative 2 are summarized in Table B-14 and detailed in Table B-15. Direct and indirect capital costs for this alternative are estimated to be $151,700, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first year is estimated to be $110,000, which assumes quarterly groundwater sampling. The O&M cost for the following 30 years is estimated to be $27,500 per year, which assumes annual groundwater sampling. The net present value of 31 years of O&M costs is $434,800, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 2, including a 30 percent contingency, is $763,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Because Alternative 2 does not meet the RAOs for the site within a reasonable time period, this alternative is not protective and therefore has a low degree of cost reasonableness.

Treatment of Hot Spots. Although MNA is considered a treatment technology by Oregon State, the hot spot at IRP Site 11 is not expected to be treated to concentrations below the significant adverse effect level in a timely manner under this alternative. The hot spot, defined by the extent of contaminants above respective significant adverse effect levels, could potentially expand due to migration of the source area.

State Acceptance. The Natural Attenuation Alternative would not be expected to be acceptable to ODEQ. Oregon requires that hot spots such as that present in groundwater at IRP Site 11 be treated within a reasonable timeframe and this is not expected to occur using the Natural Attenuation alternative.

Community Acceptance. The Natural Attenuation Alternative is not expected to be acceptable to the community due to the expected duration required to meet treatment goals.

5.4.1.3 IRP Site 11 - Alternative 3: In Situ Oxidation - Potassium Permanganate Injection with Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 3 at IRP Site 11 with respect to the criteria described in Section 5.1. Figure 5-12 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. This alternative is expected to effectively remove or significantly reduce the concentrations of VOCs from groundwater at IRP Site 11. The risks associated with exposure to these compounds would be reduced to an acceptable level based on the current and future land use.

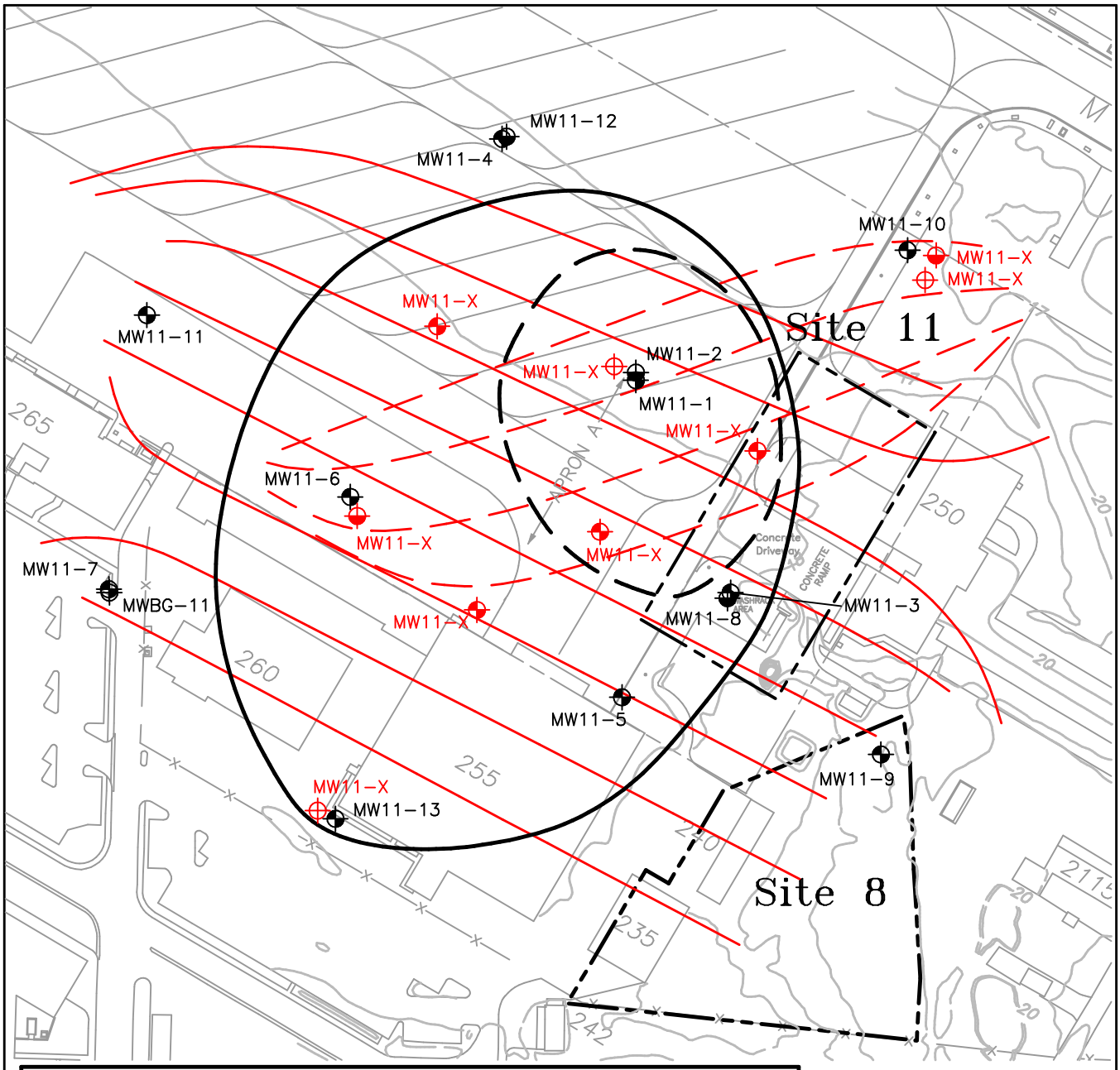
Compliance with ARARs. This alternative is expected to effectively reduce the concentrations of VOCs in groundwater to below the levels set by chemical-specific ARARs.

Long-Term Effectiveness and Permanence. The residual risk posed by groundwater at IRP Site 11 would be reduced by this alternative because the contaminants associated with the risks are destroyed. Groundwater monitoring would be required for an extended period after the completion of this alternative in order to verify attainment of the RAOs.

The contaminants in the downgradient areas of the Site treated by MNA are expected to be destroyed within a reasonable time frame, due to enhanced conditions from upgradient permanganate injection. However, if long-term monitoring indicates that VOCs in this area are not degrading at an acceptable rate, potassium permanganate can be injected in additional injection wells installed in this area.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant if the ownership or leaseholder of the Base property changes.

Reduction of TMV Through Treatment. The use of potassium permanganate oxidation and MNA to treat VOCs in groundwater will result in reduced toxicity, mobility, and volume of hazardous materials in IRP Site 11 groundwater. This reduction is performed through chemical and biological destruction rather than transfer of contaminants from one media to another. The treatment process is irreversible and will result in the production of only harmless byproducts.



LEGEND

- Monitoring Well, Shallow Zone
- Monitoring Well, Deep Zone
- Monitoring Well, Columbia River Sand Aquifer
- Proposed Monitoring Well, Shallow Zone
- Proposed Monitoring Well, Deep Zone
- Proposed Monitoring Well, Columbia River Sand Aquifer

Note: Proposed wells are shown in red.

- Proposed Shallow Zone Horizontal Well
- Proposed Deep Zone Horizontal Well
- Shallow Zone Treatment Area
- Deep Zone Treatment Area
- IRP Site Boundary
- 270 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)

N

0 75 150

Scale in Feet

ERM

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IRP SITE 11
ALTERNATIVE 3
IN SITU OXIDATION–POTASSIUM PERMAGNATE INJECTION WITH MONITORED NATURAL ATTENUATION
PLAN VIEW OF TREATMENT SYSTEM LAYOUT

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FIGURE 5–12

Short-Term Effectiveness. Workers performing the injection will be in contact with potassium permanganate in solid or dissolved form. Worker exposure would be minimized by the use of appropriate health and safety personal protective equipment.

Adverse effects on groundwater that is used for drinking or irrigation is not expected, as described in Section 4.4.5.1. The oxidative effects of the potassium permanganate will diminish with time as it reacts with organic material in the subsurface.

Risks associated with VOCs in groundwater are quickly reduced due to the rapid treatment resulting from permanganate oxidation. Destruction of VOCs in areas treated by potassium permanganate is expected to be complete within 1 to 2 years.

Implementability. Implementation obstacles within the zone of active remediation by potassium permanganate injection include ensuring the avoidance of underground utilities, coring through the thick concrete on the flight apron to install wells, working around secure buildings, and coordinating well installation and permanganate injection with flight operations and Base personnel. The use of directionally-drilled horizontal wells will avoid the need to install numerous vertical injection wells. However, the installation of the horizontal wells requires a great deal of precision, expertise, equipment and space, compared to conventional drilling. Closure of areas at the drilling locations may be required. This alternative has been developed to allow full use of the flight apron during construction, with the exception of the installation of a small number of monitoring wells.

The implementability of this alternative may be inhibited by the geology at the site. Preferential flow paths and areas of low conductivity will dictate where the injected potassium permanganate will flow. This may result in small regions of an aquifer not receiving injected material. This can be overcome by performing multiple injections of potassium permanganate.

The injection of potassium permanganate will require coordination with the ODEQ UIC program. This will create scheduling delays due to ODEQ review and public participation requirements.

Cost. Capital and O&M costs associated with Alternative 3 are summarized in Table B-14 and detailed in Table B-16. Direct and indirect capital costs for this alternative are estimated to be $1,673,950, and include

all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 2 years is estimated to be $220,000, which assumes quarterly groundwater sampling. The O&M cost for the following 5 years is estimated to be $27,500 per year, which assumes annual groundwater sampling. The net present value of 7 years of O&M costs is $331,300, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 3, including a 30 percent contingency, is $2,607,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Alternative 3 is the least expensive of the alternatives that employ active remedial measures. Additionally, this alternative is expected to meet the RAOs for the site within a reasonable time period and is thus protective. As a result, this alternative has a high degree of cost reasonableness.

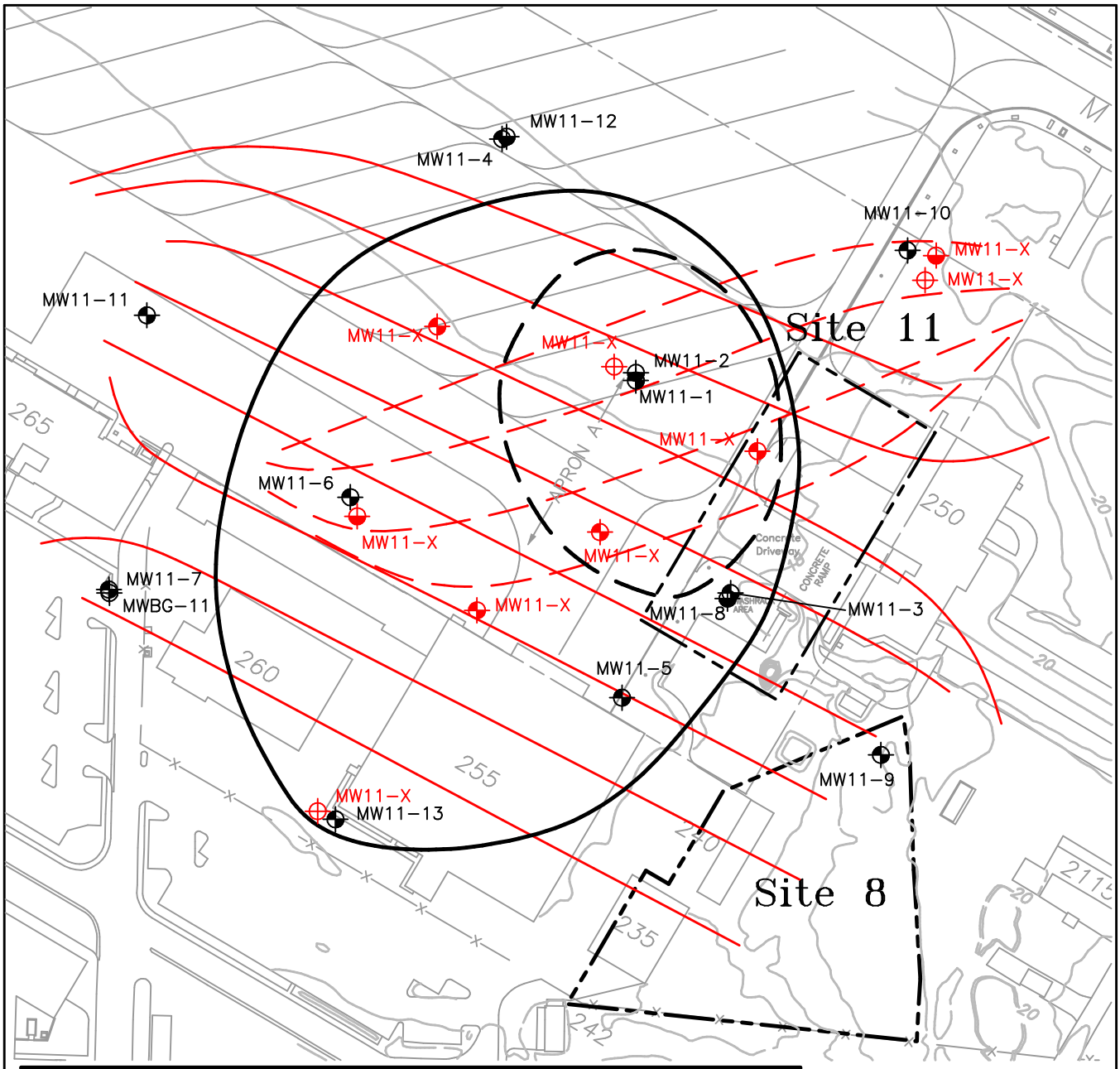
Treatment of Hot Spots. This alternative is expected to treat the VOCs at IRP Site 11 to below significant adverse effect levels within a reasonable timeframe.

State Acceptance. The use of potassium permanganate to treat groundwater at the Base has been accepted by ODEQ for relatively small-scale implementation and is expected to be acceptable for full-scale application. However, ODEQ approval of larger scale use of potassium permanganate injection is likely to be contingent on an appropriate monitoring and reporting plan to ensure compliance with the UIC program.

Community Acceptance. The use of potassium permanganate is expected to have some community resistance since it relies on the injection of a foreign material into the groundwater and the perception that it will cause groundwater flowing away from the site to remain purple. An appropriate monitoring and reporting system is an important component of this alternative to allow the public the opportunity to monitor water quality during the remedial action.

5.4.1.4 IRP Site 11 - Alternative 4: In Situ Oxidation - Ozonation with Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 4 at IRP Site 11 with respect to the criteria described in Section 5.1. Figure 5-13 depicts the layout of the primary components of this alternative.



LEGEND

- Monitoring Well, Shallow Zone
- Monitoring Well, Deep Zone
- Monitoring Well, Columbia River Sand Aquifer
- Proposed Monitoring Well, Shallow Zone
- Proposed Monitoring Well, Deep Zone
- Proposed Monitoring Well, Columbia River Sand Aquifer

Note: Proposed wells are shown in red.

- Proposed Shallow Zone Horizontal Sparge Well
- Proposed Deep Zone Horizontal Sparge Well
- Shallow Zone Treatment Area
- Deep Zone Treatment Area
- IRP Site Boundary
- 270 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)

N

0 75 150

Scale in Feet

ERM

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IRP SITE 11
ALTERNATIVE 4
IN SITU OXIDATION-OZONATION WITH MONITORED NATURAL ATTENUATION
PLAN VIEW OF TREATMENT SYSTEM LAYOUT

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FIGURE 5-13

Overall Protection of Human Health and Environment. This alternative is expected to effectively remove, or significantly reduce, the VOC concentrations from IRP Site 11 groundwater. The risks associated with exposure to these compounds would be reduced to an acceptable level, based on current and future land use.

Compliance with ARARs. This alternative is expected to effectively reduce the VOC concentrations in Shallow Zone and Deep Zone groundwater to below the levels set by chemical-specific ARARs.

Long-Term Effectiveness and Permanence. The residual risk posed by groundwater at IRP Site 11 would be reduced by this alternative because the contaminants associated with the risks are destroyed. Groundwater monitoring would be required for an extended period after the completion of this alternative to verify attainment of the RAOs.

The contaminants in the downgradient areas of the site treated by MNA are expected to be destroyed within a reasonable timeframe, due to enhanced conditions from upgradient ozonation. However, if long-term monitoring indicates that VOCs in this area are not degrading at an acceptable rate, expansion of the area of ozonation would be considered.

The institutional and engineering controls implemented as part of this alternative should be reliable in the long term, based on the current and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV Through Treatment. The use of ozonation and MNA to treat VOCs in groundwater will result in reduced TMV of hazardous materials in IRP Site 11 groundwater. This reduction would be performed through chemical and biological destruction, rather than transfer of contaminants among media. The treatment process is irreversible and will result in the production of only harmless byproducts.

Short-Term Effectiveness. Ozone is a strong oxidant and care must be taken to prevent worker or base employee exposure to ozone generated for injection. This would include periodic monitoring of ozone in workspace air, and enclosing and locking the ozone generator and sparge wellheads to prevent tampering.

Adverse effects on groundwater used for drinking or irrigation purposes would not be likely expected, as the oxidative effects of ozone are short-lived.

Risks associated with VOCs in groundwater are quickly reduced due to the rapid treatment resulting from ozonation. Destruction of VOCs in areas treated by ozonation is expected to be complete within 3 years.

Implementability. Implementation obstacles within the zone of active remediation include ensuring the avoidance of underground utilities, coring through the thick concrete on the flight apron to install wells, working around secure buildings, and coordinating well installation and system operation with flight operations. The use of directionally-drilled horizontal wells will avoid the need to install numerous vertical sparge wells and extensive underground piping in the flight apron area. However, the installation of the horizontal wells requires a great deal of precision, expertise, equipment, and space, compared to conventional drilling. Closure of areas at the drilling locations may be required. This alternative has been developed to allow full use of the flight apron during construction, with the exception of the installation of a small number of monitoring wells. Also, the use of horizontal wells precludes the use of in-well water-recirculating pumps that are occasionally used to increase the radius of influence of ozone sparge wells.

The implementability of this alternative may be inhibited by the site geology. Preferential flow paths and areas of low conductivity would dictate where sparged air would flow; however, this could likely be overcome by utilizing a pulsed sparging technique consisting of alternating periods of sparging with periods of rest.

The injection of ozone would require coordination with the ODEQ UIC program, which would likely will create scheduling delays due to ODEQ's review and public participation requirements.

This would entail more equipment and maintenance than other alternatives. In addition, installation and monitoring of the system would require extensive labor as compared to technologies that simply involve injection and monitoring.

Cost. Capital and O&M costs associated with Alternative 4 are summarized in Table B-14 and detailed in Table B-17. Direct and indirect capital costs for this alternative are estimated to be $2,592,850, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 3 years is estimated to be $685,800, which assumes quarterly groundwater sampling and 3 years of treatment system operation. The O&M cost for the following 5 years is estimated to be $27,500 per year, which assumes annual groundwater sampling. The net present value of 8

years of O&M costs is $798,600 , which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 4, including a 30 percent contingency, is $4,409,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Alternative 4 is expected to meet the RAOs for the site within a reasonable timeframe and is thus protective. Additionally, Alternative 4 is one of the least expensive alternatives that employ active remedial measures. Therefore, it has a high degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat the VOCs at IRP Site 11 to below significant adverse-effect levels within a reasonable timeframe.

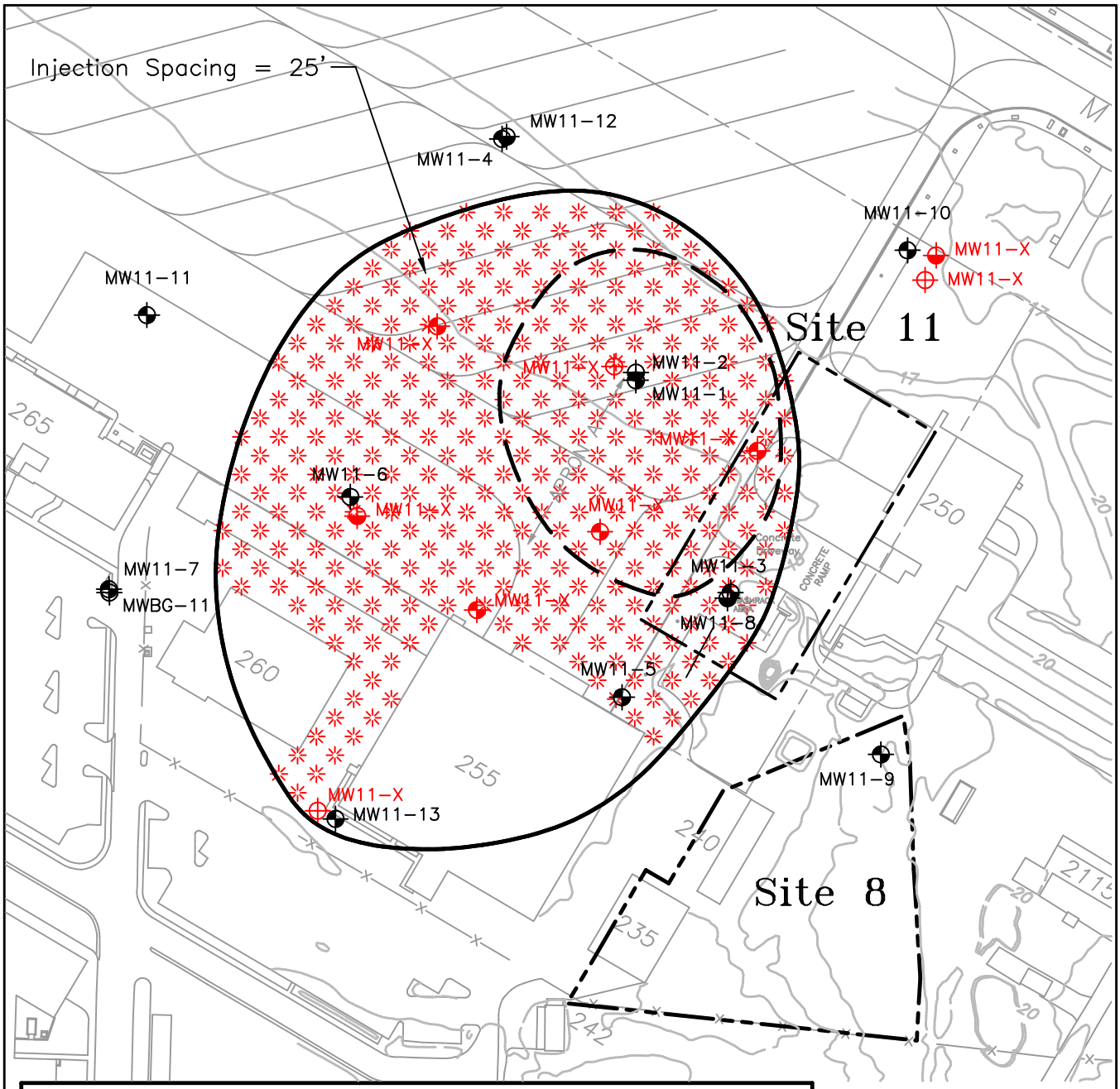
State Acceptance. The use of ozonation to treat groundwater at the Base has been accepted by ODEQ for relatively small-scale implementation and is expected to be acceptable for full-scale application. However, ODEQ approval of larger scale use of an injection technology is likely to be contingent on an appropriate monitoring and reporting plan to ensure compliance with the UIC program.

Community Acceptance. The use of ozonation is expected to have less community resistance than other injection technologies since it relies on the injection of a short-lived gas rather than a liquid. However, an appropriate monitoring and reporting system is still an important component of this alternative to allow the public the opportunity to monitor water quality during the remedial action.

5.4.1.5 IRP Site 11 - Alternative 5: Enhanced Bioremediation with Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 5 at IRP Site 11 with respect to the criteria described in Section 5.1. Figure 5-14 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. This alternative is expected to effectively reduce VOCs in Shallow Zone and Deep Zone groundwater at IRP Site 11, and the risks associated with exposure to this contamination. However, the effectiveness of this alternative is uncertain, as the use of oxygen releasing materials to treat groundwater containing VC has not been performed extensively. Approximately 75 percent removal of VC was observed during a pilot test performed using ORC® at IRP Site 2 It is expected that VC and cis-1,2-DCE will



LEGEND

- Monitoring Well, Shallow Zone
- Monitoring Well, Deep Zone
- Monitoring Well, Columbia River Sand Aquifer
- Proposed Monitoring Well, Shallow Zone
- Proposed Monitoring Well, Deep Zone
- Proposed Monitoring Well, Columbia River Sand Aquifer
- Proposed Direct-Push Injection Location
- Shallow Zone Treatment Area
- Deep Zone Treatment Area
- IRP Site Boundary
- 270 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)

Note: Proposed wells are shown in red.

N

0 75 150

Scale in Feet

ERM

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60497163.dwg, 02/13/01

IRP SITE 11
ALTERNATIVE 5
ENHANCED BIOREMEDIATION WITH MONITORED NATURAL ATTENUATION
PLAN VIEW OF TREATMENT SYSTEM LAYOUT

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FIGURE 5-14

degrade following the creation of enhanced aerobic conditions, but it is uncertain whether the treatment will reduce concentrations to below RAOs.

This alternative is expected to take longer to begin significant reduction of VOCs versus other alternatives, because native microbes must acclimate to the enhanced environment following injection.

Compliance with ARARs. The ability of this alternative to reach ARARs through treatment is uncertain. The effectiveness of this technology at reducing VC to the very low concentrations specified by chemical specific ARARs is uncertain.

Long-Term Effectiveness and Permanence. The residual risk posed by Shallow Zone and Deep Zone groundwater at IRP Site 11 would be reduced by this alternative because the contaminants associated with the risks are degraded to harmless byproducts. Although it is uncertain if this alternative would reduce VC to below the significant adverse-effect level at the site, the resulting reduction should be sufficient to prevent off-site migration, thereby meeting the first RAO. Groundwater monitoring would be required for an extended period to verify attainment of this RAO.

The institutional and engineering controls implemented as part of this alternative would likely be reliable in the long term, based on current and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV Through Treatment. Enhancing bioremediation in IRP Site 11 groundwater would reduce the TMV of VOCs. This would be accomplished through irreversible biological destruction, rather than transfer of contaminants among media. The amount of VOCs that would be degraded by enhanced bioremediation at this site is unknown. A significant reduction of VOC concentration is expected, though, which would result in significant reduction of toxicity. Mobility and volume of contaminated groundwater would also be expected to decrease.

Short-Term Effectiveness. This alternative is expected to take a short period to begin effective removal, thus delaying the reduction of risk. Natural biological activity at IRP Site 11 has been shown to be stagnant, and would require acclimation following injection of an enhancing product.

Groundwater containing unacceptable VOC concentrations has not migrated off Base, and is not expected to reach Base boundaries in the very near future. Also, the institutional and engineering controls used as part of this alternative would prevent VOC exposure at the site. These factors would likely limit the added risks related to the delayed effectiveness of this alternative.

Implementability. Implementation obstacles within the zone of active remediation include ensuring the avoidance of underground utilities, coring through the thick concrete on the flight apron for each direct-push injection location, working around secure buildings, and coordinating well installation and direct-push injection with flight operations. Certain areas at the edge of the hot spot at IRP Site 11 would not be conducive to treatment due to the presence of buildings, such as Buildings 260 and 255 at the south end of the hot spot (Figure 5-14). Coordinating the extensive coring and patching of the surface to original conditions would be difficult on the flight apron. This alternative also relies on multiple staggered injections in closely spaced locations. Coring the concrete surface at this interval may impact the structural integrity of the concrete surface. This alternative is considered infeasible based on these factors.

The treatment of groundwater by the injection of an oxygen releasing material more greatly relies on the flow of groundwater past the injection locations, than the flow of injected material into surrounding groundwater. The shallow gradient of groundwater at IRP Site 11 would limit the rate of transfer of oxygen created to the surrounding groundwater.

The injection of any material would require coordination with the ODEQ UIC program, which could likely create scheduling delays due to ODEQ's review and public participation requirements.

Cost. Capital and O&M costs associated with Alternative 5 are summarized in Table B-14, and detailed in Table B-18. Direct and indirect capital costs for this alternative are estimated to be $2,983,150, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 2 years is estimated to be $220,000, which assumes quarterly groundwater sampling. The O&M cost for the following 5 years is estimated to be $27,500 per year, which assumes annual groundwater sampling. The net present value of 7 years of O&M costs is $331,300, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 5, including a 30 percent contingency, is $4,309,000. In

accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Alternative 5 is one of the most expensive of the alternatives that employ active remedial measures. Also, this alternative is not expected to meet the RAOs for the site in a reasonable time period, and would not therefore be considered protective. As a result, this alternative has a low degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat most VOCs at IRP Site 11 to below respective significant adverse-effect levels within a reasonable timeframe. It is unknown if VC could be treated by this method to its significant adverse-effect level of 2 µg/l (ODEQ 1998c) within a reasonable timeframe.

State Acceptance. The use of enhanced bioremediation to treat groundwater at the Base has been accepted by ODEQ for relatively small-scale implementation and is expected to be acceptable for full-scale application.

Community Acceptance. The use of enhanced bioremediation is not expected to have community resistance. However, since this technology is less established for treatment of chlorinated hydrocarbons, the community may be skeptical that it would effectively achieve cleanup goals.

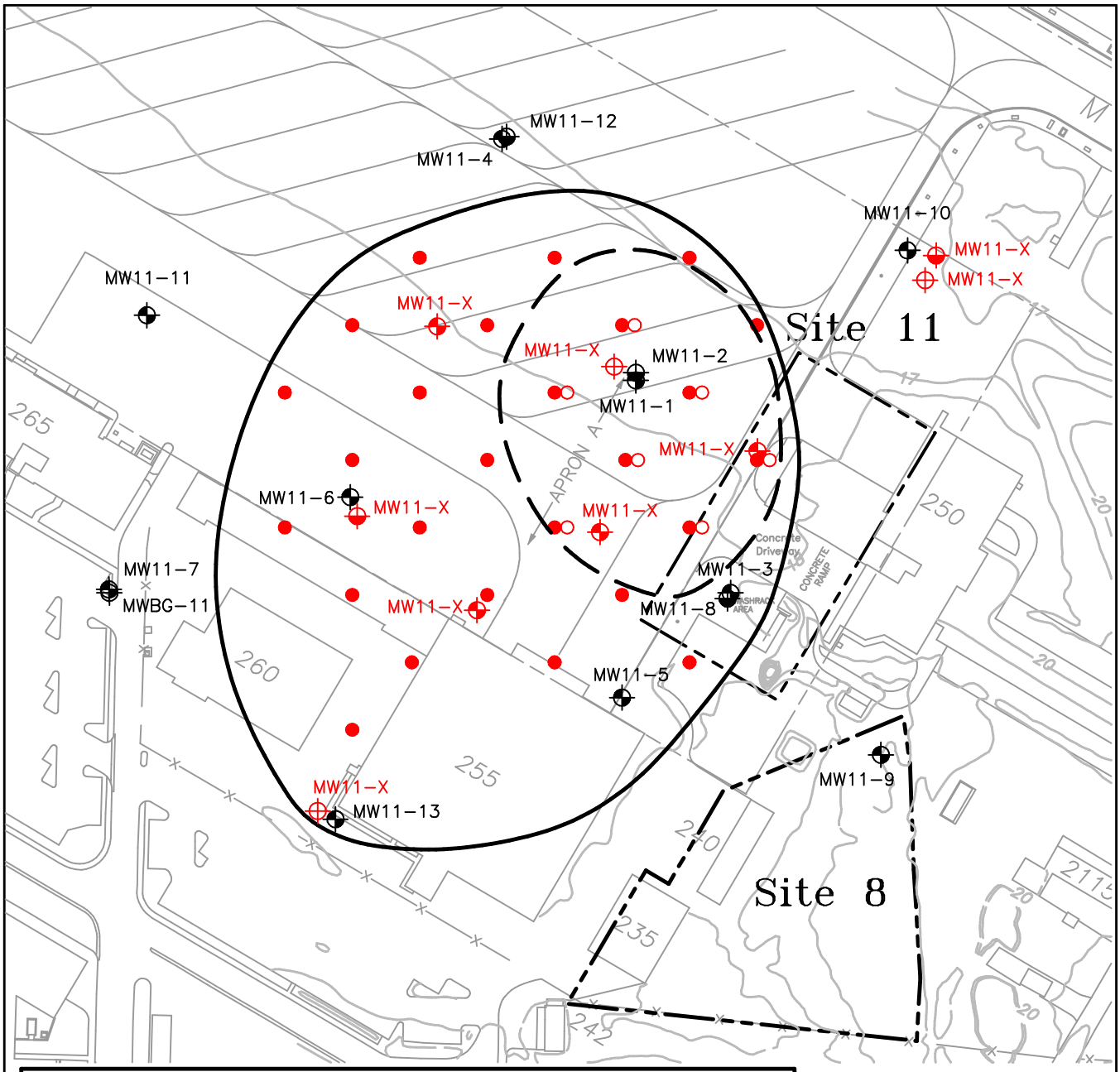
5.4.1.6 IRP Site 11 - Alternative 6: In-Well Aeration with Monitored Natural Attenuation

The following is an evaluation of the application of Alternative 6 at IRP Site 11 with respect to the criteria described in Section 5.1. Figure 5-15 depicts the layout of the primary components of this alternative.

Overall Protection of Human Health and Environment. This alternative would reduce the risk posed by IRP Site 11 by reducing the VOC concentrations in Shallow Zone and Deep Zone groundwater, and the potential for contaminated groundwater to migrate to off-site receptors. The risks associated with exposure to these compounds would be reduced to an acceptable level, based on current and future land use.

Risks might be posed by regeneration or disposal of spent activated carbon associated with vapor treatment.

Compliance with ARARs. This alternative is expected to reduce VOCs in IRP Site 11 groundwater to below chemical-specific ARARs.



LEGEND

- Monitoring Well, Shallow Zone
- Monitoring Well, Deep Zone
- Monitoring Well, Columbia River Sand Aquifer
- Proposed Monitoring Well, Shallow Zone
- Proposed Monitoring Well, Deep Zone
- Proposed Monitoring Well, Columbia River Sand Aquifer

Note: Proposed wells are shown in red.

- Proposed Shallow Zone Aeration Well
- Proposed Deep Zone Aeration Well
- Shallow Zone Treatment Area
- Deep Zone Treatment Area
- IRP Site Boundary
- 270 Building ID
- 15 Ground Surface Elevation Contour (ft amsl)

N

0 75 150

Scale in Feet

ERM

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60497164.dwg, 04/25/01

IRP SITE 11
ALTERNATIVE 6
IN-WELL AERATION
WITH MONITORED NATURAL ATTENUATION
PLAN VIEW OF TREATMENT SYSTEM LAYOUT

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FIGURE 5-15

Groundwater within the zone of active treatment by in-well aeration is expected to be rapidly treated to concentrations below ARARs. MNA is expected to degrade VOCs in downgradient groundwater outside of the radius of influence of the in-well aeration system to below ARARs, although at a slower rate than within the active treatment zone.

Long-Term Effectiveness and Permanence. The residual risk posed by IRP Site 11 would be reduced by this alternative because the risk posed by the VOCs in Shallow Zone and Deep Zone groundwater would be significantly reduced. Groundwater monitoring would be required beyond the operation of the in-well aeration system to verify attainment of cleanup goals.

The contaminants in the downgradient areas of the site treated by MNA are expected to be destroyed within a reasonable timeframe, due to enhanced aerobic conditions from upgradient aeration. However, if long-term monitoring indicates that VOCs in this area are not degrading at an acceptable rate, expansion of the system to actively treat this area would be considered.

The institutional and engineering controls implemented as part of this alternative would likely be reliable in the long term, based on current and future land-use scenarios. However, care must be taken to ensure that the controls remain in effect with each future tenant, if the ownership or leaseholder of the Base property changes.

Reduction of TMV through Treatment. Unlike other treatment technologies discussed in this FS, this technology is based on the transfer of contaminant among media, rather than destruction. Transferring the VOCs from the groundwater to the activated carbon would reduce the mobility and volume of the contaminants. The reduction of toxicity of the contaminants would depend on the final disposition of the spent carbon. For example, if the spent carbon is disposed of at a landfill, the toxicity would not be reduced. This process is irreversible if the activated carbon is handled properly.

Short-Term Effectiveness. It is difficult to estimate with accuracy the time required to achieve the remediation goal; however, based on similar scenarios, the in-well aeration system would likely reduce VOC concentrations in groundwater to below treatment goals within 3 years. The area to be treated by MNA would not experience reductions at the same rate as those within the in-well aeration area. However, the risks associated with this area are much lower.

Implementability. Implementation obstacles within the zone of active remediation include avoiding underground utilities, coring through the thick concrete on the flight apron to install wells, working around secure buildings, and coordinating well installation and system operation with flight operations. Certain areas at the edge of the hot spot at IRP Site 11 would not be conducive to treatment due to the presence of buildings (i.e., Buildings 260 and 255) at the south end of the hot spot. Installation of sub-grade wellhead connections and piping across the flight apron would also be required. Coordinating extensive cutting, trenching, pipe laying, and finishing of the concrete surface of the flight apron would be difficult. Horizontal installation of an in-well aeration system is not feasible.

Trenching, drilling, and other construction activities associated with installation of the in-well aeration system will require significant shut down of flight operations at the site. This will also effect the implementability of this alternative. This alternative is considered infeasible based on these factors.

Alternative 6 would entail more equipment and maintenance than other alternatives. In addition, installation and monitoring of the system would require extensive labor as compared to technologies that simply involve injection and monitoring.

Cost. Capital and O&M costs associated with Alternative 6 are summarized in Table B-14, and detailed in Table B-19. Direct and indirect capital costs for this alternative are estimated to be $3,287,050, and include all equipment, materials, contractor services, labor, project administration, and project management required for implementation. The O&M cost for the first 3 years is estimated to be $902,100, which assumes quarterly groundwater sampling and 3 years of treatment system operation. The O&M cost for the following 5 years is estimated to be $27,500 per year, which assumes annual groundwater sampling. The net present value of 8 years of O&M costs is $985,200, which assumes a discount rate of 7.5 percent. This discount rate was selected based on ODEQ guidance. The total estimated cost for Alternative 6, including a 30 percent contingency, is $5,554,000. In accordance with USEPA and ODEQ Guidance, these estimates are expected to be accurate to +50 to –30 percent.

Alternative 6 is expected to meet the RAOs for the site within a reasonable time period, and is therefore protective. However, this alternative is the most expensive alternative, and therefore has a medium degree of cost reasonableness.

Treatment of Hot Spots. This alternative is expected to treat the VOCs at IRP Site 11 to below significant adverse-effect levels within a reasonable timeframe.

State Acceptance. The use of in-well aeration to treat groundwater at the Base would be expected to be acceptable by ODEQ for full-scale implementation. There are no significant water quality issues related to implementation of this technology, which is a major issue with ODEQ.

Community Acceptance. The use of in-well aeration to treat groundwater at the Base would be expected to be acceptable by community residents.

5.4.2 IRP Site 11 - Comparative Analysis of Alternatives

The above-detailed evaluation consisted of an individual analysis of the six RA alternatives for IRP Site 11, with respect to protectiveness, compliance with ARARs, long-term effectiveness and permanence, reduction of TMV through treatment, short-term effectiveness, implementability, cost, and treatment of hot spots. Below, the alternatives are compared, and rated based on how well each satisfies the evaluation criteria. Because all of the action alternatives involve the completion of a set of common tasks, the following comparative analysis will focus only on those actions that are in addition to the common tasks.

5.4.2.1 IRP Site 11 - Overall Protection of Human Health and the Environment

Chemically impacted groundwater at IRP Site 11 does not pose immediate risk to human health and the environment because the groundwater is not currently used. Therefore, all of the alternatives are equally protective in the immediate timeframe. However, since the exposure pathway used for this FS considers migration of impacted groundwater to other water bodies, such as deeper aquifers or surface water, the most protective alternative would be that which would most reliably, completely, and quickly remove those chemicals impacting groundwater at IRP Site 11.

Alternative 1 and 2 are not expected to reliably, completely, or quickly remove the chlorinated VOCs impacting groundwater at IRP Site 11. The reliability of Alternative 6 is uncertain; however, a similar technology was shown to remove VOCs from groundwater extracted from Shallow Zone groundwater at IRP Site 2. However, the recirculation-well aspect of this technology proposed for this FS has not been tested at the Base. Alternative 5 is expected to reliably and quickly remove risks associated with chlorinated VOCs impacting groundwater at IRP Site 11, as shown

during the IRAC treatability test performed at IRP Site 2. However, Alternative 5 is not expected to sufficiently reduce VOC concentrations to meet the RAOs. It is expected that the effectiveness of enhanced bioremediation would diminish, as the amount of VOCs and other organic material decreases.

Alternative 4 is expected to reliably and quickly reduce concentrations of VOCs. This alternative is expected to take longer than some of the other alternatives.

Alternative 3 is most protective of human health and the environment. Like alternatives based on other technologies, this alternative has been proven to quickly destroy chlorinated VOCs in Base groundwater. This alternative is much more reliable and complete than others because potassium permanganate provides residual treatment capacity, and the effectiveness of this technology is more easily monitored.

5.4.2.2 IRP Site 11 - Compliance with ARARs

The ARAR that governs this FS is the federal MCL for each of the chlorinated VOCs impacting groundwater, as is the case for IRP Site 11 groundwater. Alternatives 1, 2, and 5 are not expected to comply with this ARAR, as VC concentrations are not expected to be reduced below the MCL of 2 µg/l for this compound.

Alternatives 4 and 6 have the potential to reduce VOC concentrations to below the respective ARARs. The in-well aeration technology of Alternative 6 has not been completely tested at the Base. Ozone sparging has been tested at the Base during the IRAC test, with some success.

Alternative 3 would most likely reliably treat VOCs in groundwater to below ARARs. Because of the complete destruction of VOCs that occurs upon contact with potassium permanganate solution, this alternative could likely be tailored in the field to provide complete destruction of VOCs impacting groundwater at IRP Site 11.

5.4.2.3 IRP Site 11 - Long-Term Effectiveness and Permanence

Alternatives 1 and 2 do not provide long-term effectiveness. These alternatives are not expected to reduce VOC concentrations in groundwater at IRP Site 11 to below the significant adverse-effect levels.

Alternatives 3, 4, and 5 would provide equal long-term effectiveness, provided RAOs are equally met. These alternatives utilize technologies that provide in situ destruction of contaminants. These technologies are not reversible, and do not pose additional risks after meeting treatment goals.

Alternative 6 would provide similar long-term effectiveness, to that of Alternative 3, 4, and 5. However, rather than destroying the contaminants in situ, Alternative 6 would utilize a technology that strips VOCs from groundwater, and moves them above ground through sparged air, where they are then destroyed. This technology is also irreversible, and poses no additional risks after treatment goals are met.

Alternative 3 would be the most effective alternative in the long term, because of the greater residual ability of potassium permanganate to destroy VOCs.

5.4.2.4 IRP Site 11 - Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives 1 and 2 would not significantly reduce TMV of VOC-impacted groundwater impacted at IRP Site 11. Some reduction of toxicity may occur through reduction of VOC concentration at localized areas. However, the mobility and volume would likely remain unchanged, or possibly increase.

Alternatives 3, 4, and 6 are expected to effectively reduce the TMV of VOC-impacted groundwater at IRP Site 11. Alternatives 3 and 4 are expected to provide the greatest reduction.

Alternative 5 is expected to significantly reduce the toxicity of VOC-impacted groundwater. However, since this technology is not expected to provide effective treatment at lower concentrations, the reduction of the volume of impacted groundwater might not be as significant as the reduction expected with Alternatives 3, 4, and 6.

5.4.2.5 IRP Site 11 - Short-Term Effectiveness

The short-term effectiveness of Alternatives 1 and 2 is unacceptably low, based on the length of time required to reduce VOC concentrations in IRP Site 11 groundwater. VOCs could possibly migrate off-site, or down to the CRSA, within the time required to reach cleanup goals under these alternatives.

Alternatives 3, 4, 5, and 6 all provide sufficient, short-term effectiveness. These alternatives would significantly reduce VOC concentrations in groundwater in a relatively quick fashion. Alternatives 3 and 4 would pose threats to workers in the form of exposure to the oxidizers potassium permanganate and ozone. These threats could likely be controlled by the use of health and safety measures. No threats to workers are expected during implementation of Alternative 6, beyond the typical mechanical dangers associated with well drilling and machinery installation.

5.4.2.6 IRP Site 11 - Implementability

Alternatives 1 and 2 would be the easiest alternatives to implement. Alternative 1 requires no action, and Alternative 2 requires only installation of additional monitoring wells, and periodic monitoring of VOCs and natural attenuation parameters. However, the reliability of these alternatives is questionable, and it would be expected that they would require replacement at a later date.

Implementation of the remaining four alternatives would be difficult at IRP Site 11 due to the thick concrete present on the flight apron. Alternatives 5 and 6 are not feasible, due to the number of direct-push injections or well installations required (each of which require coring and patching of the concrete surface of the flight apron at IRP Site 11). Neither of these alternatives can be implemented using horizontal installation techniques similar to Alternatives 3 and 4. Oxygen-releasing material (Alternative 5) cannot be injected into a well similar to potassium permanganate, and thus requires a new injection location for each of the several applications. In-well aeration (Alternative 6) cannot be utilized with horizontal wells.

The most implementable alternatives are Alternatives 3 and 4 due to the use of horizontal drilling and installation methods. These techniques will allow implementation of these alternatives with little disruption of the flight apron concrete or flight operations. Alternative 4 would be more difficult to implement that Alternative 3 due to the amount of equipment (e.g., ozone generators, sparge points, etc.) required for operation. In addition, the installation of the SVE system would require significant additional horizontal drilling not required as part of the other alternatives.

5.4.2.7 IRP Site 11 - Cost

Alternative 1 and 2 are the least expensive alternatives, however these alternatives fail to satisfy the protectiveness criterion because they are not

expected to meet the site RAOs within a reasonable time period. These alternatives are therefore not cost reasonable. Alternative 5 is also not expected to meet the RAOs within a reasonable time period. As a result, this alternative is not the most cost reasonable. Alternatives 4 and 6 are both expected to meet the RAOs within a similarly reasonable time period, however these alternatives are more expensive than Alternative 3, and therefore are not the most cost reasonable. Alternative 3 is expected to meet remedial objectives and it is the least expensive of the alternatives that employ active remedial measures. Alternative 3 is therefore the most cost reasonable.

5.4.2.8 IRP Site 11 - Treatment of Hot Spots

Alternatives 1 and 2 would not likely effectively treat hot spots of contamination in groundwater at IRP Site 11. The implementation of either of these alternatives would potentially allow the extent of this hot spot to increase.

All of the remaining alternatives would likely reduce the size of the hot spot at IRP Site 11 through treatment. It is uncertain whether Alternative 5 would be effective at treating VOCs, particularly VC, to below the significant adverse effect level.

Alternatives 3, 4, and 6 are potentially capable of treating VOCs to below the significant adverse-effect levels; however, the expected reliability of Alternative 3 would be greater than the other alternatives.

5.4.2.9 IRP Site 11 – State Acceptance

Alternatives 1 and 2 are not expected to effectively treat hot spots of contamination in groundwater at IRP Site 11 and therefore are not expected to be acceptable to ODEQ. All of the remaining alternatives would likely reduce the size of the hot spots at IRP Site 11 through treatment as required by ODEQ. However, the use of potassium permanganate injection would be scrutinized by ODEQ the most due to the injection of an oxidizing fluid into the groundwater.

5.4.2.10 IRP Site 11 – Community Acceptance

Alternatives 1 and 2 are not expected to be acceptable to the community because they are not expected to treat hot spots of contamination in groundwater at IRP Site 11 within a reasonable timeframe.

All of the remaining alternatives would likely reduce the size of the hot spots at IRP Site 11 through treatment and should generally be acceptable to community residents. However, for Alternative 3 using potassium permanganate injection it will be important to implement a monitoring program that will sufficiently allow the public to review water quality data.

5.4.3 IRP Site 11 - Preferred Alternative

Alternative 3 is the preferred alternative because it satisfies the protectiveness criteria and remedy-selection balancing factors. Alternative 3 is also the most cost reasonable alternative and is implementable due to the ability to utilize horizontal injection wells.

Alternative 3 involves injecting potassium permanganate through several horizontal injection wells screened in the Shallow Zone and Deep Zone, combined with MNA. This alternative also includes the implementation of the common tasks described in Section 4.5.2. By implementation of Alternative 3, the following is expected to be achieved:

- Human health and the environment within the locality of facility would be protected over the long term.
- The residual risk associated with VOCs in groundwater remaining after completion of this alternative would be acceptable, as described in Section 6.2.
- Base workers would be protected from exposure to VOCs in groundwater through the use of institutional and engineering controls.
- Potassium Permanganate injection would be the most cost-effective means of reducing concentrations of VOCs in groundwater at IRP Site 11.

The EE/CA program described previously in Sections 2.8.1 and 3.11.4 is expected accomplish some of the components of the preferred alternative for IRP Site 11. The implementation of the EE/CA program will involve the injection of potassium permanganate into Shallow Zone groundwater using the same horizontal injection technique described in this FS. The purpose of the groundwater EE/CA is to immediately implement a non-time critical groundwater remedy at IRP Site 11.

The groundwater EE/CA will involve injection of potassium permanganate into Shallow Zone groundwater impacted by the highest

concentrations of VOCs. Horizontal injection wells will be used for injection. The initial area of treatment for the EE/CA is a small portion of that proposed in this FS. The first phase of the groundwater EE/CA will involve treating the area of Shallow Zone groundwater currently impacted by approximately 100 µg/l of combined VC and cis-1,2-DCE using potassium permanganate injection. Following completion of the first phase of the EE/CA, the conditions at IRP Site 11 will be reevaluated to determine if further treatment or a different treatment technology is necessary.

SECTION 6.0

RECOMMENDATIONS

This section summarizes the recommended RA alternatives for the IRP sites at the Base and presents a residual risk assessment. The RRA provides an assessment of the potential risk to human health and the environment, which might posed following the completion of the RAs at IRP Sites 2, 9, and 11.

6.1 Recommended Remedial Action Alternatives

6.1.1 IRP Site 1

As described in Section 3.1.4, the risks associated with soil at IRP Site 1 were deemed acceptable for all land-use scenarios, and therefore no further action related to soil is recommended at this location. As previously discussed, VOC-impacted groundwater within IRP Site 1 should be addressed as a portion of the plume originating from IRP Site 2, rather than as a separate groundwater plume. Accordingly, remedial alternatives developed for VOCs in IRP Site 2 groundwater will include the area of the plume that has migrated to IRP Site 1.

6.1.2 IRP Site 2

The risks associated with soil at IRP Site 2 were deemed acceptable for all land-use scenarios, and therefore no further action related to soil at this location is recommended.

As described in Section 5.2.3, Alternative 3, In Situ Oxidation - Potassium Permanganate Injection with MNA, is considered the preferred alternative for remediation of VOC-impacted groundwater at IRP Site 2 as it best satisfies the protectiveness criteria and the remedy-selection balancing factors. By implementation of Alternative 3, the following is expected to be achieved:

- Human health and the environment within the locality of facility would be protected over the long term.
- The residual risk associated with VOCs in groundwater remaining after completion of this alternative would be acceptable, as described in Section 6.2.
- Base workers would be protected from VOC exposure in groundwater through the use of institutional and engineering controls.
- Permanganate injection would be the most cost-effective means of reducing VOC concentrations in groundwater at IRP Site 2.

6.1.3 IRP Site 3

As described in Section 3.3.4, the risks associated with soil at IRP Site 3 were deemed acceptable for all land-use scenarios, and therefore no further action related to soil at this location is recommended. Further, VOC-impacted groundwater within IRP Site 3 should be addressed as a portion of the plume originating from IRP Site 2, rather than as a separate groundwater plume. Remedial alternatives developed for VOCs in IRP Site 2 groundwater will include the area of the plume that has migrated to IRP Site 3.

6.1.4 IRP Site 4

The baseline risk assessment performed during the RI (ERM 2001a) indicated that both the estimated carcinogenic risk and the noncarcinogenic hazard are acceptable for construction workers under USEPA and ODEQ guidelines. Additionally, contaminants detected in surface water and sediment in the Main Drainage Ditch do not pose unacceptable risks to potential on- or off-site ecological receptors. However, because off-site habitats along the Columbia Slough are considered to be of moderate-to-high value to wildlife, surface water monitoring should be continued to evaluate the potential for contaminants to migrate off-site via the Main Drainage Ditch. Based on recommendations from ODEQ, a Level II ecological risk assessment is planned to further evaluate potential risks to ecological receptors at the Main Drainage Ditch. Based on the results of this assessment, further action may be warranted at the Main Drainage Ditch.

6.1.5 IRP Site 5

The baseline risk assessment indicated that both the estimated carcinogenic risks and the noncarcinogenic hazards are acceptable for Base workers, construction workers, reservists, hypothetical on-site residents, and by extension, off-site residents, under USEPA and ODEQ guidelines. Consequently, no further action is recommended for soil or groundwater at this location.

6.1.6 IRP Site 7

The baseline risk assessment performed during the RI (ERM 2001a) indicated that the total estimated carcinogenic risk and noncarcinogenic hazard for Base workers, construction workers, reservists, hypothetical on-site residents, and by extension, off-site residents, are acceptable under USEPA and ODEQ guidelines. Ecological risks to the IRP Site 7 Ditch and Columbia Slough are not expected, based on the results of the Level I scoping assessment and groundwater monitoring.

The constituents detected in groundwater at IRP Site 7 are isolated detections and do not indicate persistent groundwater contamination. The risk associated with these groundwater detections is acceptable based on all anticipated land and water use scenarios. However, several groundwater samples in which PAHs were not detected were analyzed using detection limits greater than risk-based action levels, which may have underestimated associated risk. It is therefore recommended that one round of groundwater samples be collected at IRP Site 7 and analyzed using a lower detection limit to ensure that detectable concentrations of PAHs are not present. No further remedial action is recommended for this site at this time.

Regarding soil at IRP Site 7, on-site residential soil exposures are not anticipated due to current and planned industrial land use of the Portland ANGB property. In addition, because the potential risks associated with industrial soil exposures were determined to be acceptable, no further action is recommended for soil.

6.1.7 IRP Site 8

The baseline risk assessment indicated that the estimated noncarcinogenic hazards are acceptable for Base workers, construction workers, reservists, hypothetical on-site residents, and by extension, off-site residents, under

USEPA and ODEQ guidelines. Consequently, no further action is recommended for soil or groundwater at this location.

6.1.8 IRP Site 9

The baseline risk assessment indicates that the total estimated carcinogenic risk for hypothetical on-site residents exceeds USEPA and ODEQ acceptable levels, primarily as a result of assumed exposures to benzene and PAHs in groundwater under this scenario. Additionally, the carcinogenic risk associated with benzo(a)pyrene in soil under the on-site residential scenario exceeds the ODEQ benchmark for acceptable risk associated with an individual constituent. The noncarcinogenic hazard for hypothetical on-site residents also exceeds both USEPA and ODEQ guidelines, primarily as a result of benzene in groundwater. By extension of the results for the on-site residential scenario, the potential future risks to off-site residents related to the possible off-site migration and residential use of contaminated groundwater also exceed USEPA and ODEQ criteria.

On-site residential soil exposures are not anticipated due to the current and planned future industrial land use of the Portland ANGB property. Because the potential risks associated with industrial soil exposures were determined to be acceptable, no further action is recommended for soil.

As described in Section 5.3.3, the preferred RA for IRP Site 9 is Alternative 3, In Situ Oxidation – Sodium Persulfate Injection with MNA. This alternative best satisfies the protectiveness criteria and the remedy-selection balancing factors. By implementation of Alternative 3, the following is expected to be achieved:

- Human health and the environment within the locality of facility would be protected over the long term.
- The residual risk associated with VOCs in groundwater remaining after completion of this alternative would be acceptable, as described in Section 6.2.
- Base workers would be protected from exposure to VOCs in groundwater through the use of institutional and engineering controls.
- Persulfate Oxidation would be a cost-effective means of reducing benzene concentrations in groundwater at IRP Site 9.

6.1.9 IRP Site 10

The baseline risk assessment indicated that both the estimated carcinogenic risks and the noncarcinogenic hazards are acceptable for Base workers, construction workers, reservists, hypothetical on-site residents, and by extension, off-site residents, under USEPA and ODEQ guidelines. Consequently, no further action is recommended for soil or groundwater at this location.

6.1.10 IRP Site 11

The baseline risk assessment indicated that the total carcinogenic risk and noncarcinogenic hazard for hypothetical on-site residents exceed both USEPA and ODEQ levels of acceptable risk, as a result of assumed exposures to groundwater under this scenario. By extension of the results for the on-site residential scenario, the potential future risks to off-site residents related to the possible off-site migration and residential use of contaminated groundwater also exceed USEPA and ODEQ criteria. The residual soil contamination that exists near the water table in the area of the former washrack represents a potential continuing source of groundwater contamination.

Soil remaining following the 1999 soil removal action that contains elevated VOCs should be remediated. The SVE system that was partially installed adjacent to the excavated area during the removal action should be completed and placed in operation to provide treatment for the contaminated soil. SVE should provide effective removal of VOCs through volatilization and enhanced aerobic bioremediation through aeration.

As described in Section 5.4.3, the preferred alternative for remediating groundwater at IRP Site 11 is considered Alternative 3, In Situ Oxidation – Potassium Permanganate Injection with MNA. This alternative satisfies the protectiveness criteria and the remedy-selection balancing factors, and is the most protective alternative that is reasonably implementable at IRP Site 11. By implementation of Alternative 3, the following is expected to be achieved:

- Human health and the environment within the locality of facility would be protected over the long term.
- The residual risk associated with VOCs in groundwater remaining after completion of this alternative would be acceptable as described in Section 6.2.

- Base workers would be protected from exposure to VOCs in groundwater through the use of institutional and engineering controls.

- Permanganate injection would be one of the most cost-effective means of reducing VOC concentrations in groundwater at IRP Site 11.

6.2 Residual Risk Assessment

In accordance with ODEQ requirements (ODEQ 1998b), this FS includes a RRA to evaluate the potential risks associated with constituents remaining in groundwater following completion of the proposed remedial activities at IRP Sites 2, 9, and 11. This section describes the methodology used to develop the RRA and presents the results of the analysis.

As described in the ODEQ FS guidance (ODEQ 1998b), the protectiveness of the preferred remedial alternative is demonstrated through an RRA. An RRA is typically performed to provide one of the following evaluations, based on site-specific conditions:

- A quantitative assessment of the potential risk resulting from concentrations of untreated waste or treatment residuals remaining at a subject facility at the conclusion of any treatment or excavation and off-site disposal activities, taking into consideration current and reasonably likely future land- and water-use scenarios and the exposure assumptions used in the baseline risk assessment; or

- A qualitative or quantitative assessment of the adequacy and reliability of any institutional or engineering controls to be used for management of treatment residuals and untreated hazardous substances remaining at a subject facility.

Each of the above-referenced assessments is described in the following subsections.

6.2.1 Residual Risks Following Treatment

The first component of an RRA uses standard risk assessment methods to estimate the potential risk at a particular site following remediation. This step requires the determination of residual concentrations for COCs for groundwater. As discussed below, the estimation of residual groundwater concentrations can be difficult, and requires that assumptions be made regarding treatment effectiveness. One option for

estimating residual contaminant concentrations in groundwater involves measuring concentrations of concern in an area(s) immediately outside of the treatment area following completion of the RA. However, it can be reasonably predicted that at the Portland ANGB IRP sites, concentrations measured immediately outside the RA areas would not be constant through the long duration of remediation. Indeed, it is likely that these concentrations would begin to decrease at some point in the future, as a result of both reduced concentrations within the treatment areas and the effects of natural attenuation.

Alternatively, residual contaminant concentrations could be estimated based on the cleanup goals for each of the target compounds. However, this method typically results in a significant overestimate of residual risk at sites where there are multiple target analytes with significantly different concentrations and treatment goals, as is the case at IRP Site 2, as described below.

At IRP Site 2, the target compounds are TCE; cis-1,2-DCE; trans-1,2-DCE; and VC. The cleanup level for the treatment area at this site corresponds to the respective MCLs for the individual target compounds (5 µg/l for TCE; 70 µg/l for cis-1,2-DCE; 100 µg/l for trans-1,2-DCE; and 2 µg/l for VC). The percent removal required to achieve the cleanup level for VC is higher than that required for trans-1,2-DCE. At this particular site, the VC concentrations are relatively high as compared to the cleanup level for this compound. It is reasonable to assume that trans-1,2-DCE will be treated at a rate similar to VC, given the similarities in chemical properties exhibited by the two compounds. Thus, the residual concentration of trans-1,2-DCE would likely be far below its cleanup level. It follows that using the cleanup level for trans-1,2-DCE to calculate residual risk would be unnecessarily conservative.

The method used to calculate residual contaminant concentrations in this RRA addresses the limitations associated with the previous example. At each IRP site, the percent removal necessary to achieve the chemical-specific cleanup goal was calculated for each compound. Subsequently, the highest removal rate required to reach a defined cleanup level was applied to the maximum concentrations of the other compounds to calculate the maximum residual concentrations of all target analytes at a given IRP site. For example, if the concentrations of the four target compounds listed in the previous paragraph were all 200 µg/l, it was assumed that all compounds would be treated with 99 percent efficiency to reach a concentration of 2 µg/l. This residual concentration is equal to the cleanup goal for VC and is less than the cleanup goal for each of the other compounds. The initial concentrations and cleanup levels

used for these calculations, together with the resulting residual concentrations, are presented in Table 6-1.

6.2.1.1 Exposure Assessment

As described in Section 4.2, the exposure pathways used for this FS consist of residential use (i.e., for drinking, showering, etc.) of groundwater extracted from the CRSA in the vicinity of the WEA by municipal water supply recipients, and ingestion of groundwater extracted from the CRSA within the Base boundary by Base workers. However, for the purposes of the RRA, it was assumed that shallow, on-site groundwater was used for residential water supply. This assumption is consistent with exposure scenarios evaluated in the baseline human health risk assessment (presented in the Final RI Report, ERM 2001a) and with ODEQ's requirement for considering all beneficial uses for groundwater. In considering this scenario, two points deserve emphasis:

- The residential use of shallow groundwater on-site represents a hypothetical exposure, and
- The actual use of shallow groundwater for residential supply can be prevented by the implementation of institutional controls.

The cleanup goals used for treatment at the Portland Base correspond to the MCLs for the individual COCs. These cleanup goals are consistent with the requirements of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP, USEPA 1990). In addition, these cleanup goals are expected to prevent off-Base or downward migration of groundwater impacted by contaminant concentrations above that which would produce unreasonable risk to potential groundwater users or other receptors. Finally, these cleanup goals are protective of on-site exposure pathways such as the migration of VOCs from groundwater into ambient or indoor air.

6.2.1.2 Toxicity Assessment

The toxicity data used in the RRA were consistent with data used to perform the risk assessment calculations presented in the Final RI Report (ERM 2001a)

TABLE 6-1

Residual Risk Calculations

142nd FW, Portland ANGB, Portland, Oregon

Constituent	Cleanup Goal (MCL)	Maximum Treatment Zone Groundwater Concentration	Percent Removal Required to Achieve Cleanup Goal (%)	Calculated Maximum Residual Groundwater Concentration	Tap Water PRG (carcinogenic effects)	Carcinogenic Risk	Tap Water PRG (noncarcinogenic effects)	Noncarcinogenic Hazard Index
IRP Site 2								
Vinyl Chloride	2	984	99.8%	2.0	0.041	5E-05	72	0.03
Trichloroethene	5	639	99.2%	1.3	1.6	8E-07	37	0.04
cis-1,2-Dichloroethene	70	724	90.3%	1.5			61	0.02
trans-1,2-Dichloroethene	100	800	87.5%	1.6			120	0.01
					Total Risk	**5E-05**	**Total HI**	**1E-01**
IRP Site 9								
Benzene	5	1200	99.6%	5	0.35	1E-05	1.1E+01	0.45
					Total Risk	**1E-05**	**Total HI**	**5E-01**
IRP Site 11								
Vinyl Chloride	2	92.5	97.8%	2	0.041	5E-05	72	0.03
cis-1,2-Dichloroethene	70	108	35.2%	2.3			61	0.04

NOTES:

1E-02 - 0.01

HI - Hazard Index

MCL - Maximum Contaminant Level (Enforceable Level) (USEPA, February, 1996, Drinking Water and Health Advisories)

PRG - Preliminary Remediation Goal (USEPA Region 9, 2000, Region 9 Preliminary Remediation Goals)

Note - Cleanup levels, constituent concentrations, and preliminary remediation goals are expressed in units of micrograms per liter.

6.2.1.3 Risk Characterization

The calculation of residual risks followed the basic approach used for the baseline human health risk assessment presented in the Final RI Report (ERM 2001a) and is consistent with ODEQ risk assessment guidance (ODEQ 2000). The specific steps used to calculated residual risks are described below. The numeric values and calculations described are shown in Table 6-1.

- The target compounds for each IRP site are listed, along with their respective cleanup goals. The cleanup goal for each of the target compounds is the MCL. These target compounds represent the most widely detected and highest concentration compounds for the IRP site in question.

- Next, the maximum treatment zone concentrations detected during the October 2000 groundwater monitoring event are listed for the target compounds.

- Then, the maximum treatment zone concentration for each compound is compared to the corresponding cleanup goal to obtain a percent removal required to reach the cleanup goal at the location with the highest concentration.

- Applying the highest required percent removal at each site to all of the target compounds at that site, a maximum residual concentration was calculated for each target compound. These values represent upper bound estimates of the residual contaminant concentrations following completion of treatment, assuming destruction of each compound at approximately the same rate. This assumption is reasonable in light of the fact that the COCs are chemically similar and are expected to responds similarly to treatment.

- Tap water PRGs developed by USEPA Region 9 (2000) were identified for each constituent. For constituents with both carcinogenic and noncarcinogenic effects (i.e., VC, TCE, and benzene), tap water PRGs were identified based on both toxicity endpoints. Tap water PRGs are risk-based screening levels that may be used to address potential risks associated with the use of water for residential supply. These levels consider potential exposures associated with both water ingestion and inhalation of volatile constituents.

- Using the estimated residual concentrations, potential carcinogenic risks were calculated according to the following formula:

Risk = (Calculated Maximum Residual Groundwater Concentration / PRG) x (1×10^{-6})

- The residual HI was estimated for each noncarcinogenic constituent, according to the following formula: HI = (Calculated Maximum Residual Groundwater Concentration / PRG)

- The total excess lifetime carcinogenic risk was then calculated as the sum of the constituent risks; similarly, the total HI was calculated as the sum of the constituent hazard indices. These calculations were performed for IRP Sites 2, 9, and 11 separately.

- As shown in Table 6-1, the total excess lifetime carcinogenic risk[2] is 5×10^{-5} for IRP Site 2, 1×10^{-5} for IRP Site 9, and 5×10^{-5} for IRP Site 11. All of these risks are within the range of acceptable risk defined by USEPA in the NCP (1990). The estimated risks for one or more constituents at each IRP site exceed ODEQ requirements (1998d) for individual constituent risk. In addition, the cumulative risks exceed ODEQ requirements (1998d) for total risk at IRP Sites 2 and 11. However, it must be emphasized again that these estimated risks are based on a hypothetical exposure scenario, and that the use of shallow ground water will be prevented through the implementation of institutional controls.

- As shown in Table 6-1, the total noncarcinogenic hazard indices are all less than one, and, thus, no adverse health effects are anticipated as a result of the defined conditions of exposure. The estimated hazard indices are all considered acceptable under USEPA and ODEQ guidelines.

The risks calculated for this RRA represent hypothetical risks associated with the use of shallow groundwater within the treatment area for residential water supply. This is a far more conservative scenario than that represented by the exposure pathways developed in Section 4.2 of this FS. It would be more realistic to estimate risk based on the potential concentrations reaching groundwater in the CRSA, the source of groundwater for the exposure pathways. A solute transport model is currently being developed for the Portland ANGB. This model will provide a mechanism for estimating a potential future concentration of VOCs in the CRSA at the three IRP sites mentioned above, based on the

[2] A risk of 1×10^{-6} represents an upper bound probability of one in one million that an excess carcinogenic response will occur during an individual's lifetime as a result of the defined conditions of exposure.

calculated residual concentrations in the treatment area. Until these calculations can be performed, the residual risks based on the exposure pathways considered for this FS can not accurately be evaluated.

6.2.2 Adequacy or Reliability of Institutional and Engineering Controls

The institutional and engineering controls presented as part of the recommended remedial alternatives for IRP Sites 2, 9, and 11 are intended to prevent human exposure to groundwater containing unacceptable levels of VOCs. These controls were developed into the tasks presented in Section 4.5.2 to be implemented with each RA. These tasks, if implemented immediately and effectively, will adequately reduce the risk of exposure to groundwater containing VOCs. This is performed through the restriction of access to site groundwater for extraction and during site activities. Health and safety provisions prevent exposure to workers during subsurface construction activities. Groundwater monitoring provides a means of detecting VOC-impacted groundwater that may migrate off the Base.

The reliability of these controls is dependent on their ability to be quickly implemented and effectively maintained. The reliability of some controls, such as deed and zoning controls is uncertain because they will require coordination with local government, the Port of Portland, and the Base. However, these controls are less crucial since they would primarily be used to control activities on the Base property at the time that the ANG vacates the Base. The recommended remedial action will likely be complete at that time and controls would serve to limit access to groundwater containing contaminants at levels only slightly above unacceptable risk levels. Controls implemented by the Base, such as groundwater monitoring, health and safety controls, and access restrictions would be more reliable. These activities are currently implemented on some level at the Base and would be simple to upgrade to the level required by this FS.

SECTION 7.0

REFERENCES

ANG. 1998. Final Air National Guard Installation Restoration Program Investigation Protocol. June 1998.

American Society for Testing and Materials (ASTM). 1996. Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites. Designation E1739-95el.

Brown, D. 1999. An Examination of In Situ Oxidation. June 1999.

City of Portland Bureau of Planning. 2000a. Zoning Maps. Last Revised May 2000. www.planning.ci.portland.or.us

City of Portland Bureau of Planning. 2000b. Comprehensive Plan Map. www.planning.ci.portland.or.us

Department of Energy (DOE). 1999. *In Situ Chemical Oxidation Using Potassium Permanganate.* DOE, Office of Science and Technology. OST/TMS ID 167. September 1999.

Environmental Resources Management (ERM). 2001a. *Final Remedial Investigation Report, 142nd Fighter Wing, Portland Air National Guard Base, Portland, Oregon.* January 2001.

ERM. 2001b. *Installation Restoration Program Final Engineering Evaluation/Cost Analysis For Groundwater at IRP Site 11, 142nd Fighter Wing, Portland Air National Guard Base, Portland, Oregon.* June 2001.

ERM. 2001c. *Installation Restoration Program Interim Remedial Action Construction Phase I Interim Report, 142nd Fighter Wing, Portland Air National Guard Base, Portland, Oregon.* February 2001.

ERM. 2001d. *Installation Restoration Program Final Addendum to the Interim Remedial Action Construction Work Plan, 142nd Fighter Wing, Portland Air National Guard Base, Portland, Oregon.* June 2001.

ERM. 2000a. *Installation Restoration Program Draft Second Quarter 1999–2000 Groundwater Monitoring Report, 142nd Fighter Wing, Portland Air National Guard Base, Portland, Oregon.* January 2000.

ERM. 2000b. *Final Completion Report for Site 11 Interim Remedial Action Construction for Soils Media.* September 2000.

ERM. 2000c. *Installation Restoration Program Final Groundwater Interim Action Construction Work Plan, 142nd Fighter Wing, Portland Air National Guard Base, Portland, Oregon.* August 2000.

ERM. 1999a. *Installation Restoration Program Final Supplemental Soil and Groundwater Characterization Work Plan, 142nd Fighter Wing, Portland Air National Guard Base, Portland, Oregon.* August 1999.

ERM. 1999b. *Installation Restoration Program Final 1999-2000 Groundwater Monitoring Work Plan, 142nd Fighter Wing, Portland Air National Guard Base, Portland, Oregon.* August 1999.

ERM. 1999c. *Listed Hazardous Waste Evaluation.* Letter to Michael Grimm. 10 March 1999.

ERM. 1998. *Final Engineering Evaluation/Cost Analysis EE/CA for IRP Site 11.* June 1998.

ERM. 1997. *Final Investigation/Data Gap Evaluation (RI/DGE) Technical Memorandum, 142nd Fighter Wing, Portland Air National Guard Base, Oregon Air National Guard, Portland, Oregon*. October 1997.

Environmental Security Technology Certification Program. 1999. *Technology Status Review, In Situ Oxidation.* November 1999.

Ground-Water Remediation Technologies Analysis Center. 1997. *Technology Overview Report, In-well Vapor Stripping.* February 1997.

Guthrie Slusarenko Associates. 1986. *Comprehensive Plan Executive Summary*. Portland ANG Installation, PIA, Portland, Oregon.

Hartford, S. V. and W. D. McFarland. 1989. *Lithology, Thickness, and Extent of Hydrogeologic Units Underlying the East Portland Area, Oregon*; United States Geological Survey Water Resources Investigation Report 88-4410.

HMTC. 1987. *Installation Restoration Program, Phase I Records Search for Portland International Airport (ANG), Portland, Oregon and North Bend Air National Guard Station, North Bend, Oregon*.

Hoffman, T.R., R.F. Krischke, and J.A. Brent. 1996. *A Biological Assessment of Portland International Airport with Recommendations to Alleviate Wildlife Hazards to Aircraft Operations.* United States Department of Agriculture, Animal Damage Control Division.

Hoffstetter, W.H. 1984. *Geology of the Portland Well Field.* Oregon Geology, Volume 46, Number 6. June 1984.

Marley, Michael C., et al. 1995. *In Situ Air Sparging: Evaluation of Petroleum Industry Sites and Considerations for Applicability, Design, and Operation.* API Publication Number 4609. April 1995.

OpTech. 1996. *Installation Restoration Program (IRP) Draft Remedial Investigation Report for 142nd Fighter Wing, Portland Air National Guard Base, Portland, Oregon.* November 1996.

Oregon Department of Environmental Quality (ODEQ). 2000. *Final Guidance for Conduct of Deterministic Human Health Risk Assessments.* Waste Management and Cleanup Division, Cleanup Policy and Program Development Section. December 1998, Updated May 2000.

ODEQ. 1998a. *Final Guidance for Conducting Beneficial Water Use Determinations at Environmental Cleanup Sites.* 1 July 1998.

ODEQ. 1998b. *Final Guidance for Conducting Feasibility Studies.* 1 July 1998.

ODEQ. 1998c. *Final Guidance for Identification of Hot Spots.* 23 April 1998.

ODEQ. 1998d. Final Guidance for Ecological Risk Assessment: Levels I, II, III, IV. Waste Management and Cleanup Division. April 1998

Pankow and Cherry. 1996. Dense Chlorinated Solvents and other DNAPLs in Groundwater.

Port of Portland. 2001. Letter to Miriam A. Jaffe, ERM, from Jason Gately, Aviation Planner. 3 January 2001.

Port of Portland. 2000. Portland International Airport Master Plan – Summary Report. September 2000.

SAIC. 1991. *Final Report for Site Investigation at the 142nd Fighter Interceptor Group, Oregon Air National Guard, Portland International Airport, Portland, Oregon*. May 1991.

SRH Associates, Inc. 1988. *Report on Limited Investigation of Soils Contamination, Oregon Air National Guard Base, Portland, Oregon*. October 1988.

United States Department of Transportation. *South/North Corridor Project Draft Environment Impact Statement.* Prepared for METRO, Portland, Oregon. 1998.

United States Environmental Protection Agency (USEPA) Region 9. 2000. *Region 9 Preliminary Remediation Goals (PRGs).* November 2000.

USEPA. 2000b. Integrated Risk Information System. On-line toxicity database (www.epa.gov/iris), assissed December 1, 2000.

USEPA. 1998a. *Region 9 Preliminary Remediation Goals (PRGs) 1998.* Memorandum from S. J. Smucker. June 1998.

USEPA. 1997. *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites*. USEPA, OSWER Directive 9200.4-17. November 1997.

USEPA. 1996. Soil Screening Guidance: Technical Background Document. EPA/540/R-95/128. Office of Emergency and Remedial Response, Washington, DC. PB96-963502.

USEPA. 1993. *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA*.

USEPA. 1991. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. Publication 9285.6-03. Office of Emergency and Remedial Response, Washington, D.C. NTIS PB91-921314.

USEPA. 1990. 40 CFR Part 300, *National Oil and Hazardous Substances Pollution Contingency Plan, Final Rule.* 8 March 1990, V. 55, No. 46, pp.8666-8865.

USEPA. 1989. *Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual/Part A (Interim Final).* Washington, D.C.: U.S. Environmental Protection Agency. USEPA/540/1-89-002, 289p. December 1989.

USEPA. 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*. Office of Emergency and Remedial Response and Office of Solid Waste and Emergency Responses; USEPA540-G-89-004.

USEPA. 1985. Remedial Action Costing Procedures Manual. USEPA Report #600/8-87/049. OSWER Directive 9355.0-10.

APPENDIX A

INSTALLATION RESTORATION PROGRAM SUMMARY

APPENDIX A

INSTALLATION RESTORATION PROGRAM SUMMARY

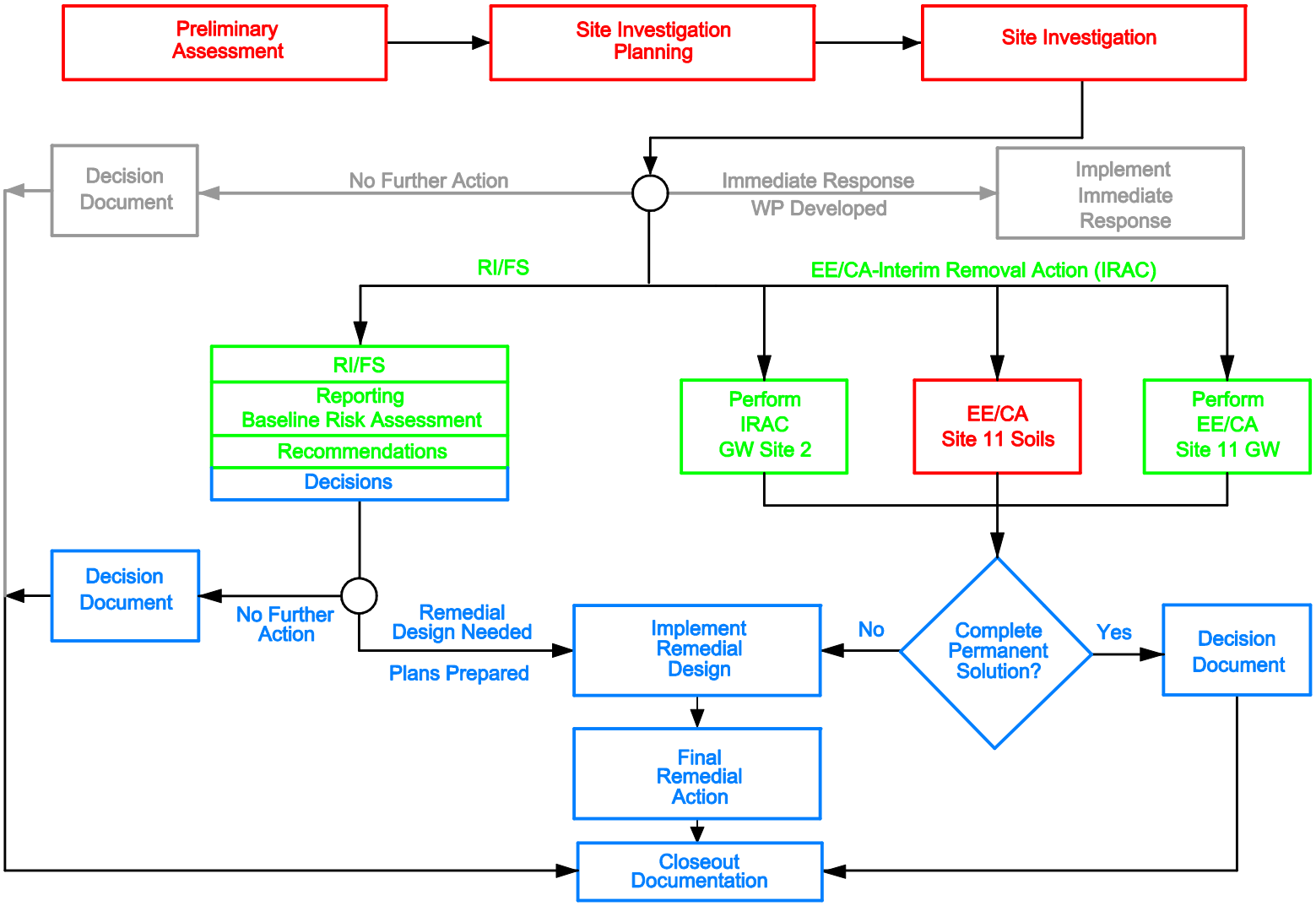
Installation Restoration Program Summary

The Defense Environmental Restoration Program (DERP) was established in 1984 to promote and coordinate efforts for the evaluation and cleanup of contamination at Department of Defense (DOD) installations. On 23 January 1987, Presidential Executive Order 12580 was issued which assigned the responsibility for carrying out DERP within the overall framework of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and the Superfund Amendments and Reauthorization Act of 1986 to the Secretary of Defense. The Installation Restoration Program (IRP) was established under DERP to identify, investigate, and remediate contamination at DOD installations. The IRP focuses on cleanup of contamination associated with past DOD activities to ensure that threats to public health are eliminated and to restore natural resources for future use.

The IRP decision process is separated into phases as illustrated in Figure A-1. The phases of the IRP process that have been performed at the Portland Air National Guard Base (Portland ANGB) are defined and described in general terms below.

Preliminary Assessment

A Preliminary Assessment (PA) was conducted at the Portland ANGB in 1987. A PA consists of personnel interviews, a records search, and site inspections to identify and evaluate past disposal and/or spill sites that might pose a threat to human health or the environment. Previously undocumented information is obtained through the interviews. The records search focuses on obtaining information from the following sources:



EXPLANATION

Red - Task Completed
Gray - Not Applicable
Green - Ongoing Task
Blue - Future Task

ERM

ANG PORTLAND PROJECT OVERVIEW

142nd FW, Portland ANGB
Portland, Oregon

Figure A-1

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- Aerial photographs;
- Installation plans;
- Facility inventory documents;
- Lists of hazardous materials used and hazardous wastes generated;
- Subcontractor reports;
- Correspondence;
- Material Safety Data Sheets;
- Federal/state agency reports on endangered or threatened species and critical habitats; and
- Other relevant documents from local government offices and standard reference sources.

As a result of the PA completed at the Portland ANGB, IRP Sites 1 through 8 were identified as potentially contaminated sites. Additional investigation was recommended for Sites 1, 2, 3, 4, 5, 7, and 8; No Further Action (NFA) was recommended for Site 6.

Site Investigation

A Site Investigation (SI) was conducted at the Portland ANGB in 1989. An SI consists of field sampling to determine whether contamination is present at the sites identified during the PA. The SI also includes a preliminary (screening) assessment of potential risks to human health and the environment.

The activities performed during the SI generally fall into three categories: screening, confirmation, and optional activities. Screening activities are conducted to gather preliminary data on each site. Confirmation activities include specific media sampling and laboratory analysis to confirm the presence or absence of contamination, chemical concentrations, and the potential for contaminant migration. Information obtained during the SI is also used to define the hydrology, geology, and soil characteristics of the sites. The data collected during the PA and SI may be sufficient to

reach a decision point for a site, such as: no further IRP action is warranted; prompt removal of contaminants is necessary; or further IRP work is required.

The general approach for the SI is to sequence the field activities so that data are acquired and used as the field investigation progresses. This is done to determine the presence or absence of contamination in a relatively short period of time, optimize data collection and data quality, and minimize costs.

As a result of the SI completed at the Portland ANGB, contamination above applicable regulatory levels was confirmed at IRP Sites 2, 4, and 5. Contaminants also were detected at IRP Sites 1, 3, and 7. Geophysical anomalies, possibly indicating disturbed soil, were detected at IRP Site 8; no samples were collected at Site 8. Following the SI, IRP Sites 10 and 11 were established based on analytical results from samples collected by Air National Guard personnel.

Remedial Investigation

A two-part Remedial Investigation (RI) was conducted at the Portland ANGB between 1995 and 2000. Phase I of the RI was conducted in 1995 and 1996, and Phase II was conducted from 1998 through 2000. The objectives of the RI are to determine the nature and extent of contamination, quantify potential threats to human health and the environment, and provide a basis for determining the response actions to be considered (e.g., NFA, Feasibility Study [FS], Remedial Design (RD), and/or Remedial Action [RA]).

Field activities performed during the RI include the installation of soil borings and groundwater monitoring wells and the collection and analysis of water, soil, and/or sediment samples. Hydrogeologic studies are conducted to characterize stratigraphy, groundwater flow directions and rates, and the potential for contaminant migration. Careful documentation and quality control procedures are implemented during RI field activities to ensure the validity of the collected data.

A baseline risk assessment is conducted to evaluate the potential threats to human health and the environment in the absence of any RA. The baseline risk assessment provides the basis for determining whether remediation may be necessary to mitigate such threats.

The RI results in the recommendation of one or more of the following response actions at each IRP site:

- NFA: The results of investigations do not indicate the presence of contamination posing an unacceptable risk to human health or the environment. Therefore, no further IRP action is warranted and a Decision Document is typically prepared to close the site.

- Long-Term Monitoring (LTM): The results of investigations do not indicate the presence of sufficient contamination to justify costly remediation. LTM may be recommended to detect possible future changes in conditions.

- Engineering Evaluation/Cost Analysis (EE/CA): The results of investigations indicate the presence of sufficient contamination to justify remediation. An EE/CA may be recommended to compare the effectiveness and costs of removal action alternatives.

- FS: The results of investigations confirm the presence of contamination that may pose a threat to human health or the environment. An FS may be recommended to establish remedial action objectives and develop remedial alternatives.

Engineering Evaluation/Cost Analysis

An EE/CA was conducted at the Portland ANGB in 1998 to address contaminated soil at IRP Site 11. At any time during an IRP project, an EE/CA can be implemented to evaluate remedial options for cleaning up contamination. An EE/CA can be completed for all non-time-critical removal actions that are not addressed by an FS. The purpose of the EE/CA is to: (1) satisfy environmental review and administrative requirements for removal actions; (2) provide a framework for evaluating and selecting alternative remediation technologies; and (3) select a remedy that significantly and permanently reduces toxicity, mobility, or volume of hazardous contaminants and is cost-effective.

An EE/CA is similar to an RI/FS but is less comprehensive because remediation is presumed to be necessary; it is often completed as a parallel effort to an RI/FS. Activities associated with the EE/CA include the following:

- Preparation of an Approval Memorandum that identifies the need for an EE/CA;
- Preparation of an EE/CA report that establishes removal action objectives and identifies and analyzes removal action alternatives; and
- Preparation of an Action Memorandum that recommends the preferred removal action alternative.

The end result of the EE/CA is the selection of the most appropriate removal action alternative with concurrence by state or Federal regulatory agencies. The EE/CA conducted at the Portland ANGB provided the necessary information to complete an Interim Remedial Action (IRA) (soil removal action) at IRP Site 11 in 1999.

Feasibility Study

Based on the results of the RI and a review of state and Federal regulatory requirements, an FS may be prepared to develop, screen, and evaluate alternatives for the remediation of contaminated media. The overall objectives of the FS include developing and evaluating remedial alternatives and selecting a remedy that is protective of human health and the environment, considers applicable or relevant and appropriate requirements, satisfies the preference for a treatment that significantly and permanently reduces toxicity, mobility, or volume of hazardous contaminants as a principal element, and maximizes cost-effectiveness.

Activities associated with the FS include the following:

- Development of remedial alternatives;
- Preliminary screening of alternatives;
- Detailed analysis of alternatives;
- Comparative analysis of alternatives; and
- Recommendation of the preferred remedial alternative in an FS report.

The end result of the FS is the selection of the most appropriate remedial alternative with concurrence by state or Federal regulatory agencies.

Remedial Design

RD involves the development and approval of the engineering plans and drawings required to implement the selected cleanup remedy identified in an EE/CA or FS. RD for the Portland ANGB was conducted in 1998 and 1999 as part of the IRA (soil removal action) performed at IRP Site 11 in September 1999.

Remedial Action

The RA phase is the actual implementation of a selected cleanup remedy. An RA may be conducted as an interim measure (i.e., an IRA), or following completion of an FS. The objective of the RA is to eliminate risks associated with environmental contamination or, at a minimum, to reduce the risks to acceptable levels. Examples of remedial alternatives that might be implemented include covering a landfill with a low-permeability cap, pumping and treating contaminated groundwater, installing a new water distribution system, and monitoring or augmenting in-situ bioremediation of contaminated soil or groundwater. In some cases, after the RA has been completed, LTM may be conducted as a precautionary measure to detect possible contaminant migration or to document the effectiveness of remediation.

An IRA (soil removal action) was conducted at the Portland ANGB in September 1999. Approximately 260 cubic yards of contaminated soil in the Site 11 source area (former washrack and oil/water separator) were excavated and treated off site. It is anticipated that other RAs will be conducted to address contaminated groundwater at the Base.

Immediate Action Alternatives

It may be determined at any point during the IRP process that a contaminated site poses an immediate threat to human health or the environment, thus necessitating prompt action to reduce the threat. Immediate action, such as limiting access to the site, capping or removing contaminated soils, or providing an alternative water supply, may suffice as effective control measures. Sites requiring immediate action maintain IRP status in order to determine the need for additional RA or LTM after the immediate action is completed. Immediate actions may be implemented during any phase of an IRP project.

APPENDIX B

COST TABLES

TABLE B-1

List of Assumptions Used in Cost Estimation
142nd FW, Portland ANGB, Portland, Oregon

Item	Value		
Indirect Costs			
Contractor Overhead & Profit	15%	TDC	
Engineering and Construction Oversight	15%	TDC	
Health and Safety Costs	3%	TDC	
Project Management & Administration	10%	TDC	
Annual O&M Replacement Costs	3%	TDC	
General Contingency	30%	Cap and O&M costs	
Well Installation and Sampling			
Site 11 Cost Multiplier (for airport concrete)	1.2		
Well Installation Costs (incl. labor & expenses)	*Sites 2 & 9*	*Site 11*	
Shallow Zone Monitoring Well Cost	$5,000	$6,000	
Deep Zone Monitoring Well Cost	$7,000	$8,400	
CRSA Monitoring Well Cost (incl. telescoping drill method)	$10,000	$12,000	
Shallow Zone Ozone Sparging Well Cost	$7,000	$8,400	
Deep Zone Ozone Sparging Well Cost	$9,800	$11,800	
Shallow Zone Injection Well Cost	$3,500	$4,200	
Deep Zone Injection Well Cost	$4,900	$5,900	
Horizontal Injection Well Cost (per foot)	$100	$120	
Horizontal Well Costs			
Horizontal Well Contractor Mobilization		$45,000	
Horizontal Well Drilling Cost (per foot)		$27	
Horizontal Well screen (per foot)		$7	
Horizontal Well Blank Casing (per foot)		$5	
Horizontal Well Other Materials (per well)		$500	
Horizontal Well Development (per well)		$7,200	
Horizontal Well Standby Cost (per hour)		$500	
Horizontal Well Miscellaneous			
Well Vaults, 2 per well (per well)		$4,000	
Well installation duration (days per well)		5	
Soil Disposal Container Rental (per day)		$50	
Water Disposal Container Rental (per day)		$50	
Permit and Utility Planning		$2,560	
Waste Characterization Samples, 20 at $150 each		$3,000	
Contractor Oversight (per day)		$1,600	
Waste Disposal (per well)		$3,000	
Miscellaneous Equipment (per day)		$500	
Shallow Zone Aeration Well Installation (6-inch dia)	$15,000	$18,000	
Deep Zone Aeration Well Installation (6-inch dia)	$21,000	$25,200	
Well Sampling Labor and Equipment	$400	$480	per well

FINAL

TABLE B-1

List of Assumptions Used in Cost Estimation
142nd FW, Portland ANGB, Portland, Oregon

Item	Value		
	Site 2:	*Site 9:*	*Site 11:*
No. of Wells Sampled Per Event (incl. proposed new wells)	26	10	23
Deep Zone/Shallow Zone Multipliers			
Deep Zone / Shallow Zone Extent of Contam. Mult.	0.25		
Deep Zone / Shallow Zone Cost Multiplier	1.4		
Laboratory Costs			
VOCs - Air (TO-15)	$150		
VOCs - GW (8260)	$150		
MNA Parameters	$400		
	Site 2:	*Site 9:*	*Site 11:*
No. of MNA Samples	10	3	10
% QA / QC Samples - VOCs	50%		
% QA / QC Samples - MNA Parameters	30%		
Labor Rates			
Field Technician	$60	per hour	
Data Validating / Reporting	$100	per hour	
Misc. Direct Cost Items			
Deep Zone Direct-Push Investigation (30 VOC samples, 5 days of drilling, 10 days of consultant staff)	$17,150		
Monitored Natural Attenuation Work Plan	$10,000		
Work Plan (incl. 35%, 90%, and Final Designs)	$50,000		
As-Built Drawings and O&M Manual Preparation	$20,000		
System Startup and Optimization	$10,000		
Airport Concrete Coring (per location)	$300		
Airport Concrete Repair (per location)	$300		
Airport Concrete Coring, Excavation, and Repair for Horizontal Well location (per location)	$2,000		
% Wells and Injections Requiring Concrete Coring at Site 11	75%		
Trench, install, and backfill lines (/ lf)	$20		
Trench, install, and backfill lines in 24-inch concrete (/ lf)	$75		
System Building (incl. concrete pad)	$7,000		
Freight	$500	per unit	
Electrical Power (Capital)	$10,000		
Equipment Rental Costs (daily)			
Daily Cost of Geoprobe	$1,250		
Miscellaneous O&M Costs			
Electrical Power (Annual O&M)	$5,000		

TABLE B-1

List of Assumptions Used in Cost Estimation
142nd FW, Portland ANGB, Portland, Oregon

Item	Value	
Monitoring Period		
Alternative 2	30	
Alternatives 3 through 6	5	
Economic Information		
Discount Rate (i)	7.5%	
P / A for n=30	11.810	mult by A to get P
P / A for n=5	4.046	mult by A to get P
Alternative 3 (Permanganate or Persulfate)		
Potassium Permanganate Cost	$2.00	per pound
Sodium Persulfate Cost (incl. iron amendment)	$1.50	per pound
SHALLOW ZONE		
No. of Central Applications (in excess of 10 ppb conc.)	4	
No. of Periphery Applications (1 / 2 No. of Central)	2	
No. of Horizontal Applications	4	
Direct-Push Injection of Oxidizer (incl. Drilling, pump, mixer, equip., expenses, survey, and labor)	$500	per injection
Injection of Permanganate through Horizontal Injection Well (Site 11)	$3,750.00	per well
Setup and injection time	1.5	days per well
Equipment costs	$1,000.00	per day
Labor costs	$1,500.00	per day

Per Event	*Site 2:*	*Site 9:*
Effective Area of Shallow Zone Treatment Area (ft^2)	191,050	29,900
Injection Spacing (ft)	25	25
Total Number of Injections	310	50
No. of Central Injection Locations (80% Total)	250	50
No. of Periphery Injection Locations (20% Total)	60	N / A
lbs per location	35	95

Per Event Using Horizontal Wells	*Site 11:*
Effective Area of Shallow Zone Treatment Area (ft^2)	266,300
Number of Horizontal Wells	8
Feet of Well Screen	3465
Feet of Riser	3375
lbs per foot of screen	2

FINAL

TABLE B-1

List of Assumptions Used in Cost Estimation
142nd FW, Portland ANGB, Portland, Oregon

Item	Value		
DEEP ZONE			
No. of Applications	4		
No. of Horizontal Applications	4		
Direct-Push Injection of Oxidizer (incl. Drilling, pump, mixer, equip., expenses, survey, and labor)	$700	per injection	
Injection of Permanganate through Horizontal Injection Well (Site 11)	$3,750.00	per well	
Setup and injection time	1.5	days per well	
Equipment costs	$1,000.00	per day	
Labor costs	$1,500.00	per day	
Per Event	*Site 2:*		
No. of Injection Locations (25% total # shallow injections)	80		
Per Event Using Horizontal Wells	*Site 11:*		
Number of Horizontal Wells	4		
Feet of Well Screen	900		
Feet of Riser	2205		
lbs per foot of screen	2		
Alternative 4 (Ozone Sparging)			
SVE System (incl. blower, ozone decomposer, piping, valves, gages)	$25,000		
	Site 2:	*Site 9:*	
Effective Area of Shallow Zone Treatment Area (ft^2)	191,050	29,900	
Radius of Influence	50	25	
Ozone Sparge Point Spacing (approx. 80% x 2 x ROI)	77	43	
No. of Shallow Zone Sparge Points	32	16	
No. of Deep Zone Sparge Points (25% # shallow pts)	8	N / A	
Site 11 Horizontal Well Ozone System			
Ozone Sparging System (incl. oxygen generator, ozone generator, compressor, manifold system, and controls)	$85,500		
Shallow Zone Wells			
Ozone Sparge Wells			
Number of Horizontal Wells	8		
Feet of Well Screen	3,465		
Feet of Riser	3,375		
SVE Wells			
Number of Horizontal Wells	8		
Feet of Well Screen	3,465		
Feet of Riser	3,375		

TABLE B-1

List of Assumptions Used in Cost Estimation
142nd FW, Portland ANGB, Portland, Oregon

Item	Value		
Deep Zone Wells			
Ozone Sparge Wells			
Number of Horizontal Wells	4		
Feet of Well Screen	900		
Feet of Riser	2,205		
SVE Wells			
Number of Horizontal Wells	4		
Feet of Well Screen	900		
Feet of Riser	2,205		
Alternative 5 (Enhanced Bioremediation)			
Oxygen Releasing Chemicals Cost	$15	per lb	
Hydrogen Releasing Chemicals Cost	$10	per lb	
SHALLOW ZONE			
No. of Central Applications (in excess of 10 ppb conc.)	4		
No. of Periphery Applications (1/2 No. of Central)	2		
Direct-Push Injection (incl. Drilling, pump, mixer, equip., expenses, survey, and labor)	$300	per injection	
Oxygen Releasing Chemicals Per Event:	*Site 2:*	*Site 9:*	*Site 11:*
Effective Area of Shallow Zone Treatment Area (ft^2)	191,050	29,900	211,300
Injection Spacing (ft)	25	25	25
Total Number of Injections	310	50	340
No. of Central Injection Locations (80% Total)	250	50	270
No. of Periphery Injection Locations (20% Total)	60	N/A	70
lbs per location	30	30	30
Hydrogen Releasing Chemicals Per Event:	*Site 2:*		
No. of Injection Locations	10		
Initial lbs per location	30		
DEEP ZONE			
No. of Applications	4		
Direct-Push Injection (incl. Drilling, pump, mixer, equip., expenses, survey, and labor)	$420	per injection	
Oxygen Releasing Chemicals Per Event:	*Site 2:*	*Site 9:*	*Site 11:*
No. of Injection Locations (25% total # shallow injections)	80	10	90

TABLE B-1

List of Assumptions Used in Cost Estimation
142nd FW, Portland ANGB, Portland, Oregon

Item	Value		
Alternative 6 (In-Well Aeration)			
Shallow Zone Aeration Unit (incl. blower, moisture knockout, pump, packer, stripping reactor, piping, & gages)	$8,300	per unit	
Deep Zone Aeration Unit (incl. blower, moisture knockout, pump, packer, stripping reactor, piping, & gages)	$11,600	per unit	
Well Rehabilitation Cost to Treat Fouling	$2,000	per well	
Cost of Carbon ($/lb)	$2.00		
	Site 2:	*Site 9:*	*Site 11:*
Effective Area of Shallow Zone Treatment Area (ft^2)	191,050	29,900	211,300
Radius of Influence	60	60	60
Aeration Well Spacing (approx. 80% x 2 x ROI)	96	96	96
No. of Shallow Zone Aeration Wells	21	4	23
No. of Deep Zone Aeration Wells (25% # shallow wells)	5	N/A	6
Carbon Mass Calculation	*Site 2:*	*Site 9:*	*Site 11:*
Estimated Mass of Contamination (lbs)	10	5	10
Carbon Efficiency by Wt.	0.05%	1.00%	0.05%
Wt of Carbon Req'd (lbs)	20,000	500	20,000
Annualized Wt. Over 2 Years (lb/year)	10,000	250	10,000

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TABLE B-2

Summary of Costs Associated with Each Alternative
IRP Site 2
142nd FW, Portland ANGB, Portland, Oregon

Alternative	Description	Direct and Indirect Capital Costs	NPW of Total O&M Costs	General Contingency (30%)	Estimated Total Cost
Alternative 1	No Action	$0	$0	$0	**$0**
Alternative 2	Monitored Natural Attenuation	$116,100	$434,800	$165,300	**$717,000**
Alternative 3	Permanganate Oxidation	$1,438,550	$331,300	$531,000	**$2,301,000**
Alternative 4	Ozone Sparging	$1,940,750	$752,100	$807,900	**$3,501,000**
Alternative 5	Enhanced Bioremediation	$1,806,850	$331,300	$641,400	**$2,780,000**
Alternative 6	In-Well Aeration	$1,971,250	$891,000	$858,700	**$3,721,000**

Notes:

Net present worth calculated using equal series present worth analysis where i = 7.5%

FINAL

TABLE B-3

Alternative 2 - Monitored Natural Attenuation
IRP Site 2 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Deep Zone Direct-Push Investigation	1	ea.	$17,150	$17,150
Monitored Natural Attenuation Work Plan	1	ea.	$10,000	$10,000
Installation of Additional Shallow Zone Monitoring Wells	4	ea.	$5,000	$20,000
Installation of Additional Deep Zone Monitoring Wells	2	ea.	$7,000	$14,000
Installation of Additional CRSA Monitoring Wells	2	ea.	$10,000	$20,000
TOTAL DIRECT CAPITAL COSTS				**$81,200**
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$12,200	$12,200
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$12,200	$12,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$2,400	$2,400
Project Management & Administration (10% Total Direct Costs)	1	LS	$8,100	$8,100
TOTAL INDIRECT CAPITAL COSTS				**$34,900**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$116,100***
O & M COSTS				
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	26	wells	$400	$10,400
Ground Water Analysis - VOCs (26 wells + 50% QA / QC)	39	samples	$150	$5,900
Ground Water Analysis - MNA Parameters (10 wells + 30% QA / QC)	13	samples	$400	$5,200
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$3,200	$3,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$600	$600
Project Management & Administration (10% Total Direct Costs)	1	LS	$2,200	$2,200
SUBTOTAL				**$27,500**
FIRST YEAR O&M COSTS (quarterly sampling)				**$110,000**
REMAINING O&M COSTS (annual sampling for 30 years) (1)				**$324,800**
TOTAL O & M COSTS				***$434,800***
TOTAL CAPITAL AND O & M COSTS				***$550,900***
General Contingency (30% of Total Capital and O&M Costs)				***$165,300***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$717,000***

Notes:
(1) Present worth calculated using equal series present worth analysis where i = 7.5%

FINAL

TABLE B-4

Alternative 3 - Permanganate Oxidation
IRP Site 2 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Deep Zone Direct-Push Investigation	1	ea.	$17,150	$17,150
Installation of Additional Shallow Zone Monitoring Wells	4	ea.	$5,000	$20,000
Installation of Additional Deep Zone Monitoring Wells	2	ea.	$7,000	$14,000
Installation of Additional CRSA Monitoring Wells	2	ea.	$10,000	$20,000
SUBTOTAL				**$121,150**
Potassium Permanganate Injection				
Shallow Zone (Central) Direct-Push Injection of Potassium Permanganate (250 locations and 4 applications)	1,000	Injection	$500	$500,000
Shallow Zone (Periphery) Direct-Push Injection of Potassium Permanganate (60 locations and 2 applications)	120	Injection	$500	$60,000
Deep Zone Direct-Push Injection of Potassium Permanganate (80 locations and 4 applications)	320	Injection	$700	$224,000
Potassium Permanganate (1440 injections at 35 lbs per injection)	50,400	lbs.	$2.00	$100,800
SUBTOTAL				**$884,800**
TOTAL DIRECT CAPITAL COSTS				***$1,005,950***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$150,900	$150,900
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$150,900	$150,900
Health and Safety Costs (3% Total Direct Costs)	1	LS	$30,200	$30,200
Project Management & Administration (10% Total Direct Costs)	1	LS	$100,600	$100,600
TOTAL INDIRECT CAPITAL COSTS				**$432,600**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$1,438,550***
O & M COSTS				
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	26	wells	$400	$10,400
Ground Water Analysis - VOCs (26 wells + 50% QA / QC)	39	samples	$150	$5,900
Ground Water Analysis - MNA Parameters (10 wells + 30% QA / QC)	13	samples	$400	$5,200
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$3,200	$3,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$600	$600
Project Management & Administration (10% Total Direct Costs)	1	LS	$2,200	$2,200
SUBTOTAL				**$27,500**
FIRST TWO YEARS O&M COSTS (quarterly sampling)				**$220,000**
REMAINING O&M COSTS (annual sampling for 5 years) (1)				**$111,300**
TOTAL O & M COSTS				***$331,300***
TOTAL CAPITAL AND O & M COSTS				***$1,769,850***
General Contingency (30% of Total Capital and O&M Costs)				***$531,000***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$2,301,000***

Notes:
(1) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-5

Alternative 4 - Ozone Sparging
IRP Site 2 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Deep Zone Direct-Push Investigation	1	ea.	$17,150	$17,150
Installation of Additional Shallow Zone Monitoring Wells	4	ea.	$5,000	$20,000
Installation of Additional Deep Zone Monitoring Wells	2	ea.	$7,000	$14,000
Installation of Additional CRSA Monitoring Wells	2	ea.	$10,000	$20,000
SUBTOTAL				**$121,150**
Ozone Sparging System				
Shallow Zone Ozone Sparging Well Installation	32	ea.	$7,000	$224,000
Shallow Zone Ozone Sparging System (incl. master panels, in-well units, below-well sparge units, misc. costs)	8	ea.	$33,200	$265,600
Deep Zone Ozone Sparging Well Installation	8	ea.	$9,800	$78,400
Deep Zone Ozone Sparging System (incl. master panels, in-well units, below-well sparge units, misc. costs)	2	ea.	$46,500	$93,000
Freight	10	ea.	$500	$5,000
Injection and SVE Piping Installation (trench, install, fill)	6,000	lf	$20	$120,000
System Building	10	ea.	$7,000	$70,000
Electrical Installation	10	ea.	$10,000	$100,000
SVE System (incl. blower, ozone decomposer, piping, valves, gages)	10	ea.	$25,000	$250,000
As-Built Drawings and O&M Manual Preparation	1	LS	$20,000	$20,000
System Startup and Optimization	1	LS	$10,000	$10,000
SUBTOTAL				**$1,236,000**
TOTAL DIRECT CAPITAL COSTS				***$1,357,150***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$203,600	$203,600
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$203,600	$203,600
Health and Safety Costs (3% Total Direct Costs)	1	LS	$40,700	$40,700
Project Management & Administration (10% Total Direct Costs)	1	LS	$135,700	$135,700
TOTAL INDIRECT CAPITAL COSTS				**$583,600**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$1,940,750***
O & M COSTS				
Annual Treatment System O&M [(1)]				
Air Sampling and Analysis - VOCs	40	samples	$150	$6,000
Operation and Maintenance Labor	310	hours	$60	$18,600
Electrical Power	1	LS	$5,000	$5,000
Reporting	144	hours	$100	$14,400
Replacment Costs (3% Total Direct Costs)	1	LS	$40,700	$40,700

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TABLE B-5

Alternative 4 - Ozone Sparging
IRP Site 2 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$6,600	$6,600
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$6,600	$6,600
Health and Safety Costs (3% Total Direct Costs)	1	LS	$1,300	$1,300
Project Management & Administration (10% Total Direct Costs)	1	LS	$4,400	$4,400
SUBTOTAL				**$103,600**
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	26	wells	$400	$10,400
Ground Water Analysis - VOCs (26 wells + 50% QA / QC)	39	samples	$150	$5,900
Ground Water Analysis - MNA Parameters (10 wells + 30% QA / QC)	13	samples	$400	$5,200
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$3,200	$3,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$600	$600
Project Management & Administration (10% Total Direct Costs)	1	LS	$2,200	$2,200
SUBTOTAL				**$27,500**
FIRST THREE YEARS O&M COSTS (treatment O&M and quarterly sampling) (1)				**$640,800**
REMAINING O&M COSTS (annual sampling for 5 years) (2)				**$111,300**
TOTAL O & M COSTS				***$752,100***
TOTAL CAPITAL AND O & M COSTS				***$2,692,850***
General Contingency (30% of Total Capital and O&M Costs)				***$807,900***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$3,501,000***

Notes:
(1) Assume 2 years of system operation
(2) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-6

Alternative 5 - Enhanced Bioremediation
IRP Site 2 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Deep Zone Direct-Push Investigation	1	ea.	$17,150	$17,150
Installation of Additional Shallow Zone Monitoring Wells	4	ea.	$5,000	$20,000
Installation of Additional Deep Zone Monitoring Wells	2	ea.	$7,000	$14,000
Installation of Additional CRSA Monitoring Wells	2	ea.	$10,000	$20,000
SUBTOTAL				**$121,150**
Enhanced Bioremediation Treatment				
Shallow Zone Hydrogen Releasing Chemical Injection (10 locations and 4 applications)	40	Injection	$300	$12,000
Hydrogen Releasing Chemicals (40 injections at 30 lbs per injection)	1,200	lbs	$10	$12,000
Shallow Zone (Central) Oxygen Releasing Chemical Injections (250 locations and 4 applications)	1,000	Injection	$300	$300,000
Shallow Zone (Periphery) Oxygen Releasing Chemical Injections (60 locations and 2 applications)	120	Injection	$300	$36,000
Deep Zone Oxygen Releasing Chemical Injections (80 locations and 4 applications)	320	Injection	$420	$134,400
Oxygen Releasing Chemicals (1440 injections at 30 lbs per injection)	43,200	lbs	$15	$648,000
SUBTOTAL				**$1,142,400**
TOTAL DIRECT CAPITAL COSTS				***$1,263,550***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$189,500	$189,500
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$189,500	$189,500
Health and Safety Costs (3% Total Direct Costs)	1	LS	$37,900	$37,900
Project Management & Administration (10% Total Direct Costs)	1	LS	$126,400	$126,400
TOTAL INDIRECT CAPITAL COSTS				**$543,300**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$1,806,850***
O & M COSTS				
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	26	wells	$400	$10,400
Ground Water Analysis - VOCs (26 wells + 50% QA / QC)	39	samples	$150	$5,900
Ground Water Analysis - MNA Parameters (10 wells + 30% QA / QC)	13	samples	$400	$5,200
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$3,200	$3,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$600	$600
Project Management & Administration (10% Total Direct Costs)	1	LS	$2,200	$2,200

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TABLE B-6

Alternative 5 - Enhanced Bioremediation
IRP Site 2 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
SUBTOTAL				**$27,500**
FIRST TWO YEARS O&M COSTS (quarterly sampling)				**$220,000**
REMAINING O&M COSTS (annual sampling for 5 years) (1)				**$111,300**
TOTAL O & M COSTS				***$331,300***
TOTAL CAPITAL AND O & M COSTS				***$2,138,150***
General Contingency (30% of Total Capital and O&M Costs)				***$641,400***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$2,780,000***

Notes:
(1) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-7

Alternative 6 - In-Well Aeration

IRP Site 2 Cost Estimate

142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Deep Zone Direct-Push Investigation	1	ea.	$17,150	$17,150
Installation of Additional Shallow Zone Monitoring Wells	4	ea.	$5,000	$20,000
Installation of Additional Deep Zone Monitoring Wells	2	ea.	$7,000	$14,000
Installation of Additional CRSA Monitoring Wells	2	ea.	$10,000	$20,000
SUBTOTAL				**$121,150**
In-Well Aeration System				
Shallow Zone Aeration Well Installation	21	ea.	$15,000	$315,000
Shallow Zone Aeration Unit (incl. blower, moisture knockout, pump, packer, stripping reactor, piping, & gages)	21	ea.	$8,300	$174,300
Deep Zone Aeration Well Installation	5	ea.	$21,000	$105,000
Deep Zone Aeration Unit (incl. blower, moisture knockout, pump, packer, stripping reactor, piping, & gages)	5	ea.	$11,600	$58,000
Freight	26	ea.	$500	$13,000
Injection Piping Installation (trench, install, fill)	6,000	lf	$20	$120,000
System Building	26	ea.	$7,000	$182,000
Electrical Installation	26	ea.	$10,000	$260,000
As-Built Drawings and O&M Manual Preparation	1	LS	$20,000	$20,000
System Startup and Optimization	1	LS	$10,000	$10,000
SUBTOTAL				**$1,257,300**
TOTAL DIRECT CAPITAL COSTS				***$1,378,450***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$206,800	$206,800
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$206,800	$206,800
Health and Safety Costs (3% Total Direct Costs)	1	LS	$41,400	$41,400
Project Management & Administration (10% Total Direct Costs)	1	LS	$137,800	$137,800
TOTAL INDIRECT CAPITAL COSTS				**$592,800**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$1,971,250***
O & M COSTS				
Annual Treatment System O&M [(1)]				
Air Sampling and Analysis - VOCs	104	samples	$150	$15,600
Operation and Maintenance Labor	310	hours	$60	$18,600
Electrical Power	1	LS	$5,000	$5,000
GAC Disposal and Replacement	10,000	lbs.	$2	$20,000

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TABLE B-7

Alternative 6 - In-Well Aeration

IRP Site 2 Cost Estimate

142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	**Unit**	**Unit Cost**	**Total Cost**
Reporting	144	hours	$100	$14,400
Well Rehabilitation to Treat Fouling (20% wells / year)	5	wells	$2,000	$10,000
Replacment Costs (3% Total Direct Costs)	1	LS	$41,400	$41,400
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$8,700	$8,700
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$8,700	$8,700
Health and Safety Costs (3% Total Direct Costs)	1	LS	$1,700	$1,700
Project Management & Administration (10% Total Direct Costs)	1	LS	$5,800	$5,800
SUBTOTAL				**$149,900**
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	26	wells	$400	$10,400
Ground Water Analysis - VOCs (26 wells + 50% QA / QC)	39	samples	$150	$5,900
Ground Water Analysis - MNA Parameters (10 wells + 30% QA / QC)	13	samples	$400	$5,200
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$3,200	$3,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$600	$600
Project Management & Administration (10% Total Direct Costs)	1	LS	$2,200	$2,200
SUBTOTAL				**$27,500**
FIRST THREE YEARS O&M COSTS (treatment O&M and quarterly sampling) (1)				**$779,700**
REMAINING O&M COSTS (annual sampling for 5 years) (2)				**$111,300**
TOTAL O & M COSTS				***$891,000***
TOTAL CAPITAL AND O & M COSTS				***$2,862,250***
General Contingency (30% of Total Capital and O&M Costs)				***$858,700***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$3,721,000***

Notes:

(1) Assume 2 years of system operation

(2) Present worth calculated using equal series present worth analysis where i = 7.5%

TABLE B-8

Summary of Costs Associated with Each Alternative
IRP Site 9
142nd FW, Portland ANGB, Portland, Oregon

Alternative	Description	Direct and Indirect Capital Costs	NPW of Total O&M Costs	General Contingency (30%)	Estimated Total Cost
Alternative 1	No Action	$0	$0	$0	**$0**
Alternative 2	Monitored Natural Attenuation	$64,500	$159,700	$67,300	**$292,000**
Alternative 3	Sodium Persulfate	$319,000	$121,700	$132,200	**$573,000**
Alternative 4	Ozone Sparging	$570,700	$350,800	$276,500	**$1,198,000**
Alternative 5	Enhanced Bioremediation	$336,200	$121,700	$137,400	**$596,000**
Alternative 6	In-Well Aeration	$469,200	$357,100	$247,900	**$1,075,000**

Notes:

Net present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-9

Alternative 2 - Monitored Natural Attenuation
IRP Site 9 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Monitored Natural Attenuation Work Plan	1	ea.	$10,000	$10,000
Installation of Additional Shallow Zone Monitoring Wells	7	ea.	$5,000	$35,000
Installation of Additional Deep Zone Monitoring Wells	0	ea.	$7,000	$0
Installation of Additional CRSA Monitoring Wells	0	ea.	$10,000	$0
TOTAL DIRECT CAPITAL COSTS				**$45,000**
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$6,800	$6,800
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$6,800	$6,800
Health and Safety Costs (3% Total Direct Costs)	1	LS	$1,400	$1,400
Project Management & Administration (10% Total Direct Costs)	1	LS	$4,500	$4,500
TOTAL INDIRECT CAPITAL COSTS				**$19,500**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$64,500***
O & M COSTS				
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	10	wells	$400	$4,000
Ground Water Analysis - VOCs (10 wells + 50% QA / QC)	15	samples	$150	$2,300
Ground Water Analysis - MNA Parameters (3 wells + 30% QA / QC)	4	samples	$400	$1,560
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$1,200	$1,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$200	$200
Project Management & Administration (10% Total Direct Costs)	1	LS	$800	$800
SUBTOTAL				**$10,100**
FIRST YEAR O&M COSTS (quarterly sampling)				**$40,400**
REMAINING O&M COSTS (annual sampling for 30 years) (1)				**$119,300**
TOTAL O & M COSTS				***$159,700***
TOTAL CAPITAL AND O & M COSTS				***$224,200***
General Contingency (30% of Total Capital and O&M Costs)				***$67,300***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$292,000***

Notes:
(1) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-10

Alternative 3 - Persulfate Oxidation
IRP Site 9 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Installation of Additional Shallow Zone Monitoring Wells	7	ea.	$5,000	$35,000
Installation of Additional Deep Zone Monitoring Wells	0	ea.	$7,000	$0
Installation of Additional CRSA Monitoring Wells	0	ea.	$10,000	$0
SUBTOTAL				**$85,000**
Potassium Permanganate Injection				
Shallow Zone Direct-Push Injection of Sodium Persulfate (50 locations and 4 applications)	200	Injection	$500	$100,000
Sodium Persulfate (200 injections at 95 lbs per injection)	19,000	lbs.	$2.00	$38,000
SUBTOTAL				**$138,000**
TOTAL DIRECT CAPITAL COSTS				***$223,000***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$33,500	$33,500
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$33,500	$33,500
Health and Safety Costs (3% Total Direct Costs)	1	LS	$6,700	$6,700
Project Management & Administration (10% Total Direct Costs)	1	LS	$22,300	$22,300
TOTAL INDIRECT CAPITAL COSTS				**$96,000**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$319,000***
O & M COSTS				
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	10	wells	$400	$4,000
Ground Water Analysis - VOCs (10 wells + 50% QA / QC)	15	samples	$150	$2,300
Ground Water Analysis - MNA Parameters (3 wells + 30% QA / QC)	4	samples	$400	$1,560
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$1,200	$1,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$200	$200
Project Management & Administration (10% Total Direct Costs)	1	LS	$800	$800
SUBTOTAL				**$10,100**
FIRST TWO YEARS O&M COSTS (quarterly sampling)				**$80,800**
REMAINING O&M COSTS (annual sampling for 5 years) (1)				**$40,900**
TOTAL O & M COSTS				***$121,700***
TOTAL CAPITAL AND O & M COSTS				***$440,700***
General Contingency (30% of Total Capital and O&M Costs)				***$132,200***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$573,000***

Notes:
(1) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-11

Alternative 4 - Ozone Sparging
IRP Site 9 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Installation of Additional Shallow Zone Monitoring Wells	7	ea.	$5,000	$35,000
Installation of Additional Deep Zone Monitoring Wells	0	ea.	$7,000	$0
Installation of Additional CRSA Monitoring Wells	0	ea.	$10,000	$0
SUBTOTAL				**$85,000**
Ozone Sparging System				
Shallow Zone Ozone Sparging Well Installation	16	ea.	$7,000	$112,000
Shallow Zone Ozone Sparging System (incl. master panels, in-well units, below-well sparge units, misc. costs)	2	ea.	$21,500	$43,000
Freight	2	ea.	$500	$1,000
Injection and SVE Piping Installation (trench, install, fill)	2,200	lf	$20	$44,000
System Building	2	ea.	$7,000	$14,000
Electrical Installation	2	ea.	$10,000	$20,000
SVE System (incl. blower, ozone decomposer, piping, valves, gages)	2	ea.	$25,000	$50,000
As-Built Drawings and O&M Manual Preparation	1	LS	$20,000	$20,000
System Startup and Optimization	1	LS	$10,000	$10,000
SUBTOTAL				**$314,000**
TOTAL DIRECT CAPITAL COSTS				***$399,000***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$59,900	$59,900
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$59,900	$59,900
Health and Safety Costs (3% Total Direct Costs)	1	LS	$12,000	$12,000
Project Management & Administration (10% Total Direct Costs)	1	LS	$39,900	$39,900
TOTAL INDIRECT CAPITAL COSTS				**$171,700**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$570,700***
O & M COSTS				
Annual Treatment System O&M [(1)]				
Air Sampling and Analysis - VOCs	8	samples	$150	$1,200
Operation and Maintenance Labor	250	hours	$60	$15,000
Electrical Power	1	LS	$5,000	$5,000
Reporting	144	hours	$100	$14,400
Replacment Costs (3% Total Direct Costs)	1	LS	$12,000	$12,000
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$5,300	$5,300
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$5,300	$5,300
Health and Safety Costs (3% Total Direct Costs)	1	LS	$1,100	$1,100
Project Management & Administration (10% Total Direct Costs)	1	LS	$3,600	$3,600
SUBTOTAL				**$62,900**

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TABLE B-11

Alternative 4 - Ozone Sparging
IRP Site 9 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	10	wells	$400	$4,000
Ground Water Analysis - VOCs (10 wells + 50% QA / QC)	15	samples	$150	$2,300
Ground Water Analysis - MNA Parameters (3 wells + 30% QA / QC)	4	samples	$400	$1,560
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$1,200	$1,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$200	$200
Project Management & Administration (10% Total Direct Costs)	1	LS	$800	$800
SUBTOTAL				**$10,100**
FIRST THREE YEARS O&M COSTS (treatment O&M and quarterly sampling) (1)				**$309,900**
REMAINING O&M COSTS (annual sampling for 5 years) (2)				**$40,900**
TOTAL O & M COSTS				***$350,800***
TOTAL CAPITAL AND O & M COSTS				***$921,500***
General Contingency (30% of Total Capital and O&M Costs)				***$276,500***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$1,198,000***

Notes:
(1) Assume 2 years of system operation
(2) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-12

Alternative 5 - Enhanced Bioremediation
IRP Site 9 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Installation of Additional Shallow Zone Monitoring Wells	7	ea.	$5,000	$35,000
Installation of Additional Deep Zone Monitoring Wells	0	ea.	$7,000	$0
Installation of Additional CRSA Monitoring Wells	0	ea.	$10,000	$0
SUBTOTAL				**$85,000**
Enhanced Bioremediation Treatment				
Oxygen Releasing Chemical Injection (50 locations and 4 applications)	200	Injection	$300	$60,000
Oxygen Releasing Chemicals (200 injections at 30 lbs per injection)	6,000	lbs	$15	$90,000
SUBTOTAL				**$150,000**
TOTAL DIRECT CAPITAL COSTS				***$235,000***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$35,300	$35,300
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$35,300	$35,300
Health and Safety Costs (3% Total Direct Costs)	1	LS	$7,100	$7,100
Project Management & Administration (10% Total Direct Costs)	1	LS	$23,500	$23,500
TOTAL INDIRECT CAPITAL COSTS				**$101,200**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$336,200***
O & M COSTS				
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	10	wells	$400	$4,000
Ground Water Analysis - VOCs (10 wells + 50% QA/QC)	15	samples	$150	$2,300
Ground Water Analysis - MNA Parameters (3 wells + 30% QA/QC)	4	samples	$400	$1,560
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$1,200	$1,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$200	$200
Project Management & Administration (10% Total Direct Costs)	1	LS	$800	$800
SUBTOTAL				**$10,100**
FIRST TWO YEARS O&M COSTS (quarterly sampling)				**$80,800**
REMAINING O&M COSTS (annual sampling for 5 years) (1)				**$40,900**
TOTAL O & M COSTS				***$121,700***
TOTAL CAPITAL AND O & M COSTS				***$457,900***
General Contingency (30% of Total Capital and O&M Costs)				***$137,400***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$596,000***

Notes:
(1) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-13

Alternative 6 - In-Well Aeration
IRP Site 9 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Installation of Additional Shallow Zone Monitoring Wells	7	ea.	$5,000	$35,000
Installation of Additional Deep Zone Monitoring Wells	0	ea.	$7,000	$0
Installation of Additional CRSA Monitoring Wells	0	ea.	$10,000	$0
SUBTOTAL				**$85,000**
In-Well Aeration System				
Shallow Zone Aeration Well Installation	4	ea.	$15,000	$60,000
Shallow Zone Aeration Unit (incl. blower, moisture knockout, pump, packer, stripping reactor, piping, & gages)	4	ea.	$8,300	$33,200
Freight	4	ea.	$500	$2,000
Injection Piping Installation (trench, install, fill)	2,500	lf	$20	$50,000
System Building	4	ea.	$7,000	$28,000
Electrical Installation	4	ea.	$10,000	$40,000
As-Built Drawings and O&M Manual Preparation	1	LS	$20,000	$20,000
System Startup and Optimization	1	LS	$10,000	$10,000
SUBTOTAL				**$243,200**
TOTAL DIRECT CAPITAL COSTS				***$328,200***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$49,200	$49,200
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$49,200	$49,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$9,800	$9,800
Project Management & Administration (10% Total Direct Costs)	1	LS	$32,800	$32,800
TOTAL INDIRECT CAPITAL COSTS				**$141,000**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$469,200***
O & M COSTS				
Annual Treatment System O&M [(1)]				
Air Sampling and Analysis - VOCs	16	samples	$150	$2,400
Operation and Maintenance Labor	260	hours	$60	$15,600
Electrical Power	1	LS	$5,000	$5,000
GAC Disposal and Replacement	250	lbs.	$2	$500
Reporting	144	hours	$100	$14,400
Well Rehabilitation to Treat Fouling (20% wells / year)	1	wells	$2,000	$2,000
Replacment Costs (3% Total Direct Costs)	1	LS	$9,800	$9,800

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TABLE B-13

Alternative 6 - In-Well Aeration

IRP Site 9 Cost Estimate

142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$5,300	$5,300
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$5,300	$5,300
Health and Safety Costs (3% Total Direct Costs)	1	LS	$1,100	$1,100
Project Management & Administration (10% Total Direct Costs)	1	LS	$3,600	$3,600
SUBTOTAL				**$65,000**
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	10	wells	$400	$4,000
Ground Water Analysis - VOCs (10 wells + 50% QA/QC)	15	samples	$150	$2,300
Ground Water Analysis - MNA Parameters (3 wells + 30% QA/QC)	4	samples	$400	$1,560
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$1,200	$1,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$200	$200
Project Management & Administration (10% Total Direct Costs)	1	LS	$800	$800
SUBTOTAL				**$10,100**
FIRST THREE YEARS O&M COSTS (treatment O&M and quarterly sampling) (1)				**$316,200**
REMAINING O&M COSTS (annual sampling for 5 years) (2)				**$40,900**
TOTAL O & M COSTS				***$357,100***
TOTAL CAPITAL AND O & M COSTS				***$826,300***
General Contingency (30% of Total Capital and O&M Costs)				***$247,900***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$1,075,000***

Notes:

(1) Assume 2 years of system operation

(2) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-14

Summary of Costs Associated with Each Alternative

IRP Site 11

142nd FW, Portland ANGB, Portland, Oregon

Alternative	Description	Direct and Indirect Capital Costs	NPW of Total O&M Costs	General Contingency (30%)	Estimated Total Cost
Alternative 1	No Action	$0	$0	$0	**$0**
Alternative 2	Monitored Natural Attenuation	$151,700	$434,800	$176,000	**$763,000**
Alternative 3	Permanganate Oxidation	$1,673,950	$331,300	$601,600	**$2,607,000**
Alternative 4	Ozone Sparging	$2,592,850	$798,600	$1,017,400	**$4,409,000**
Alternative 5	Enhanced Bioremediation	$2,983,150	$331,300	$994,300	**$4,309,000**
Alternative 6	In-Well Aeration	$3,287,050	$985,200	$1,281,700	**$5,554,000**

Notes:

Net present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-15

Alternative 2 - Monitored Natural Attenuation
IRP Site 11 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Deep Zone Direct-Push Investigation	1	ea.	$17,150	$17,150
Monitored Natural Attenuation Work Plan	1	ea.	$10,000	$10,000
Installation of Additional Shallow Zone Monitoring Wells	4	ea.	$6,000	$24,000
Installation of Additional Deep Zone Monitoring Wells	2	ea.	$8,400	$16,800
Installation of Additional CRSA Monitoring Wells	3	ea.	$12,000	$36,000
Concrete Coring Well and Injection Locations (75%)	7	ea.	$300	$2,100
TOTAL DIRECT CAPITAL COSTS				**$106,100**
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$15,900	$15,900
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$15,900	$15,900
Health and Safety Costs (3% Total Direct Costs)	1	LS	$3,200	$3,200
Project Management & Administration (10% Total Direct Costs)	1	LS	$10,600	$10,600
TOTAL INDIRECT CAPITAL COSTS				**$45,600**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$151,700***
O & M COSTS				
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	23	wells	$480	$11,040
Ground Water Analysis - VOCs (23 wells + 50% QA / QC)	35	samples	$150	$5,300
Ground Water Analysis - MNA Parameters (10 wells + 30% QA / QC)	13	samples	$400	$5,200
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$3,200	$3,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$600	$600
Project Management & Administration (10% Total Direct Costs)	1	LS	$2,200	$2,200
SUBTOTAL				**$27,500**
FIRST YEAR O&M COSTS (quarterly sampling)				**$110,000**
REMAINING O&M COSTS (annual sampling for 30 years) (1)				**$324,800**
TOTAL O & M COSTS				***$434,800***
TOTAL CAPITAL AND O & M COSTS				***$586,500***
General Contingency (30% of Total Capital and O&M Costs)				***$176,000***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$763,000***

Notes:
(1) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-16

Alternative 3 - Permanganate Oxidation
IRP Site 11 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Deep Zone Direct-Push Investigation	1	ea.	$17,150	$17,150
Installation of Additional Shallow Zone Monitoring Wells	4	ea.	$6,000	$24,000
Installation of Additional Deep Zone Monitoring Wells	2	ea.	$8,400	$16,800
Installation of Additional CRSA Monitoring Wells	3	ea.	$12,000	$36,000
Concrete Coring Well Locations	4	ea.	$300	$1,200
Concrete Coring and Preparation of Horizontal Well Entrance Locations	12	ea.	$2,000	$24,000
Horizontal Well Contractor Mobilization	1	lump sum	$45,000	$45,000
SUBTOTAL				**$214,150**
Shallow Zone Potassium Permanganate Injection				
Drilling of Shallow Zone Horizontal Injection Well	6,840	feet	$27	$184,700
Horizontal Injection Well Screen	3,465	feet	$7	$24,300
Horizontal Injection Well Blank Casing	3,375	feet	$5	$16,875
Horizontal Injection Well Other Materials	8	well	$500	$4,000
Horizontal Injection Well Standby	80	hours	$500	$40,000
Horizontal Injection Well Development	8	well	$7,200	$57,600
Miscellaneous Horizontal Injection Well Costs	1	lump sum	$149,560	$149,600
Shallow Zone Injection of Potassium Permanganate (8 wells and 4 applications)	32	well	$3,750	$120,000
Potassium Permanganate (13860 feet at 2 lbs per screen foot)	27,720	lbs.	$2.00	$55,400
Deep Zone Potassium Permanganate Injection				
Drilling of Deep Zone Horizontal Injection Well	3,105	feet	$27	$83,800
Horizontal Injection Well Screen	900	feet	$7	$6,300
Horizontal Injection Well Blank Casing	2,205	feet	$5	$11,025
Horizontal Injection Well Other Materials	4	well	$500	$2,000
Horizontal Injection Well Standby	40	hours	$500	$20,000
Horizontal Injection Well Development	4	well	$7,200	$28,800
Miscellaneous Horizontal Injection Well Costs	1	lump sum	$77,560	$77,600
Deep Zone Injection of Potassium Permanganate (4 wells and 4 applications)	16	well	$3,750	$60,000
Potassium Permanganate (3600 feet at 2 lbs per screen foot)	7,200	lbs.	$2.00	$14,400
SUBTOTAL				**$956,400**
TOTAL DIRECT CAPITAL COSTS				***$1,170,550***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$175,600	$175,600
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$175,600	$175,600
Health and Safety Costs (3% Total Direct Costs)	1	LS	$35,100	$35,100
Project Management & Administration (10% Total Direct Costs)	1	LS	$117,100	$117,100
TOTAL INDIRECT CAPITAL COSTS				**$503,400**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$1,673,950***
O & M COSTS				
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	23	wells	$480	$11,040
Ground Water Analysis - VOCs (23 wells + 50% QA / QC)	35	samples	$150	$5,300
Ground Water Analysis - MNA Parameters (10 wells + 30% QA / QC)	13	samples	$400	$5,200
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$3,200	$3,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$600	$600
Project Management & Administration (10% Total Direct Costs)	1	LS	$2,200	$2,200

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TABLE B-16

Alternative 3 - Permanganate Oxidation
IRP Site 11 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
SUBTOTAL				**$27,500**
FIRST TWO YEARS O&M COSTS (quarterly sampling)				**$220,000**
REMAINING O&M COSTS (annual sampling for 5 years) (1)				**$111,300**
TOTAL O & M COSTS				***$331,300***
TOTAL CAPITAL AND O & M COSTS				***$2,005,250***
General Contingency (30% of Total Capital and O&M Costs)				***$601,600***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$2,607,000***

Notes:
(1) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-17
Alternative 4 - Ozone Sparging
IRP Site 11 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Deep Zone Direct-Push Investigation	1	ea.	$17,150	$17,150
Installation of Additional Shallow Zone Monitoring Wells	4	ea.	$6,000	$24,000
Installation of Additional Deep Zone Monitoring Wells	2	ea.	$8,400	$16,800
Installation of Additional CRSA Monitoring Wells	3	ea.	$12,000	$36,000
Concrete Coring Well Locations (75%)	10	ea.	$300	$3,000
Concrete Coring and Preparation of Horizontal Well Entrance Locations	12	ea.	$2,000	$24,000
Horizontal Well Contractor Mobilization	1	lump sum	$45,000	$45,000
SUBTOTAL				**$215,950**
Shallow Zone Ozone Sparging Wells				
Drilling of Shallow Zone Horizontal Sparge Well	6,840	feet	$27	$184,700
Horizontal Injection Well Screen	3,465	feet	$7	$24,300
Horizontal Injection Well Blank Casing	3,375	feet	$5	$16,875
Horizontal Injection Well Other Materials	8	well	$500	$4,000
Horizontal Injection Well Standby	80	hours	$500	$40,000
Horizontal Injection Well Development	8	well	$7,200	$57,600
Miscellaneous Horizontal Injection Well Costs	1	lump sum	$149,560	$149,600
Deep Zone Ozone Sparging Wells				
Drilling of Deep Zone Horizontal Sparge Well	3,105	feet	$27	$83,800
Horizontal Injection Well Screen	900	feet	$7	$6,300
Horizontal Injection Well Blank Casing	2,205	feet	$5	$11,025
Horizontal Injection Well Other Materials	4	well	$500	$2,000
Horizontal Injection Well Standby	40	hours	$500	$20,000
Horizontal Injection Well Development	4	well	$7,200	$28,800
Miscellaneous Horizontal Injection Well Costs	1	lump sum	$77,560	$77,600
SUBTOTAL				**$706,600**
Shallow Zone SVE Wells				
Drilling of Shallow Zone Horizontal SVE Well	6,840	feet	$27	$184,700
Horizontal Injection Well Screen	3,465	feet	$7	$24,300
Horizontal Injection Well Blank Casing	3,375	feet	$5	$16,875
Horizontal Injection Well Other Materials	8	well	$500	$4,000
Horizontal Injection Well Standby	80	hours	$500	$40,000
Horizontal Injection Well Development	8	well	$7,200	$57,600
Miscellaneous Horizontal Injection Well Costs	1	lump sum	$149,560	$149,600
Deep Zone SVE Wells				
Drilling of Deep Zone Horizontal SVE Well	3,105	feet	$27	$83,800
Horizontal Injection Well Screen	900	feet	$7	$6,300
Horizontal Injection Well Blank Casing	2,205	feet	$5	$11,025
Horizontal Injection Well Other Materials	4	well	$500	$2,000
Horizontal Injection Well Standby	40	hours	$500	$20,000
Horizontal Injection Well Development	4	well	$7,200	$28,800
Miscellaneous Horizontal Injection Well Costs	1	lump sum	$77,560	$77,600
SUBTOTAL				**$706,600**
Ozone Sparging System				
Shallow Zone Ozone Sparging System	1	ea.	$128,250	$128,250
Deep Zone Ozone Sparging System	1	ea.	$85,500	$85,500
Freight	1	lump sum	$5,000	$5,000
Injection and SVE Piping Installation (trench, install, fill)	1,000	lf	$75	$75,000
System Building	2	ea.	$7,000	$14,000
Electrical Installation	1	ea.	$10,000	$10,000
SVE System (incl. blower, ozone decomposer, piping, valves, gages)	2	ea.	$25,000	$50,000
As-Built Drawings and O&M Manual Preparation	1	LS	$20,000	$20,000
System Startup and Optimization	1	LS	$10,000	$10,000
SUBTOTAL				**$184,000**

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TABLE B-17
Alternative 4 - Ozone Sparging
IRP Site 11 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
TOTAL DIRECT CAPITAL COSTS				***$1,813,150***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$272,000	$272,000
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$272,000	$272,000
Health and Safety Costs (3% Total Direct Costs)	1	LS	$54,400	$54,400
Project Management & Administration (10% Total Direct Costs)	1	LS	$181,300	$181,300
TOTAL INDIRECT CAPITAL COSTS				**$779,700**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$2,592,850***
O & M COSTS				
Annual Treatment System O&M [(1)]				
Air Sampling and Analysis - VOCs	48	samples	$150	$7,200
Operation and Maintenance Labor	310	hours	$60	$18,600
Electrical Power	1	LS	$5,000	$5,000
Reporting	144	hours	$100	$14,400
Replacment Costs (3% Total Direct Costs)	1	LS	$54,400	$54,400
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$6,800	$6,800
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$6,800	$6,800
Health and Safety Costs (3% Total Direct Costs)	1	LS	$1,400	$1,400
Project Management & Administration (10% Total Direct Costs)	1	LS	$4,500	$4,500
SUBTOTAL				**$119,100**
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	23	wells	$480	$11,040
Ground Water Analysis - VOCs (23 wells + 50% QA / QC)	35	samples	$150	$5,300
Ground Water Analysis - MNA Parameters (10 wells + 30% QA / QC)	13	samples	$400	$5,200
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$3,200	$3,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$600	$600
Project Management & Administration (10% Total Direct Costs)	1	LS	$2,200	$2,200
SUBTOTAL				**$27,500**
FIRST THREE YEARS O&M COSTS (treatment O&M and quarterly sampling) (1)				**$687,300**
REMAINING O&M COSTS (annual sampling for 5 years) (2)				**$111,300**
TOTAL O & M COSTS				***$798,600***
TOTAL CAPITAL AND O & M COSTS				***$3,391,450***
General Contingency (30% of Total Capital and O&M Costs)				***$1,017,400***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$4,409,000***

Notes:
(1) Assume 2 years of system operation
(2) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-18

Alternative 5 - Enhanced Bioremediation
IRP Site 11 Cost Estimate
142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Deep Zone Direct-Push Investigation	1	ea.	$17,150	$17,150
Installation of Additional Shallow Zone Monitoring Wells	4	ea.	$6,000	$24,000
Installation of Additional Deep Zone Monitoring Wells	2	ea.	$8,400	$16,800
Installation of Additional CRSA Monitoring Wells	3	ea.	$12,000	$36,000
Concrete Coring Well and Injection Locations (75%)	1,190	ea.	$300	$357,000
Airport Concrete Repair	1,190	ea.	$300	$357,000
SUBTOTAL				**$857,950**
Enhanced Bioremediation Treatment				
Shallow Zone (Central) Oxygen Releasing Chemical Injections (270 locations and 4 applications)	1,080	Injection	$300	$324,000
Shallow Zone (Periphery) Oxygen Releasing Chemical Injections (70 locations and 2 applications)	140	Injection	$300	$42,000
Deep Zone Oxygen Releasing Chemical Injections (90 locations and 4 applications)	360	Injection	$420	$151,200
Oxygen Releasing Chemicals (1580 injections at 30 lbs per injection)	47,400	lbs	$15	$711,000
SUBTOTAL				**$1,228,200**
TOTAL DIRECT CAPITAL COSTS				***$2,086,150***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$312,900	$312,900
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$312,900	$312,900
Health and Safety Costs (3% Total Direct Costs)	1	LS	$62,600	$62,600
Project Management & Administration (10% Total Direct Costs)	1	LS	$208,600	$208,600
TOTAL INDIRECT CAPITAL COSTS				**$897,000**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$2,983,150***
O & M COSTS				
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	23	wells	$480	$11,040
Ground Water Analysis - VOCs (23 wells + 50% QA / QC)	35	samples	$150	$5,300
Ground Water Analysis - MNA Parameters (10 wells + 30% QA / QC)	13	samples	$400	$5,200
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$3,200	$3,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$600	$600
Project Management & Administration (10% Total Direct Costs)	1	LS	$2,200	$2,200
SUBTOTAL				**$27,500**
FIRST TWO YEARS O&M COSTS (quarterly sampling)				**$220,000**
REMAINING O&M COSTS (annual sampling for 5 years) (1)				**$111,300**
TOTAL O & M COSTS				***$331,300***
TOTAL CAPITAL AND O & M COSTS				***$3,314,450***
General Contingency (30% of Total Capital and O&M Costs)				***$994,300***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$4,309,000***

Notes:
(1) Present worth calculated using equal series present worth analysis where i = 7.5%

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TABLE B-19

Alternative 6 - In-Well Aeration

IRP Site 11 Cost Estimate

142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
DIRECT CAPITAL COSTS				
Preparation Work				
Work Plan (incl. 35%, 90%, and Final Designs)	1	ea.	$50,000	$50,000
Deep Zone Direct-Push Investigation	1	ea.	$17,150	$17,150
Installation of Additional Shallow Zone Monitoring Wells	4	ea.	$6,000	$24,000
Installation of Additional Deep Zone Monitoring Wells	2	ea.	$8,400	$16,800
Installation of Additional CRSA Monitoring Wells	3	ea.	$12,000	$36,000
Concrete Coring Well Locations	38	ea.	$300	$11,400
SUBTOTAL				**$155,350**
In-Well Aeration System				
Shallow Zone Aeration Well Installation	23	ea.	$18,000	$414,000
Shallow Zone Aeration Unit (incl. blower, moisture knockout, pump, packer, stripping reactor, piping, & gages)	23	ea.	$8,300	$190,900
Deep Zone Aeration Well Installation	6	ea.	$25,200	$151,200
Deep Zone Aeration Unit (incl. blower, moisture knockout, pump, packer, stripping reactor, piping, & gages)	6	ea.	$11,600	$69,600
Freight	29	ea.	$500	$14,500
Injection Piping Installation (trench, install, fill)	10,400	lf	$75	$780,000
System Building	29	ea.	$7,000	$203,000
Electrical Installation	29	ea.	$10,000	$290,000
As-Built Drawings and O&M Manual Preparation	1	LS	$20,000	$20,000
System Startup and Optimization	1	LS	$10,000	$10,000
SUBTOTAL				**$2,143,200**
TOTAL DIRECT CAPITAL COSTS				***$2,298,550***
INDIRECT CAPITAL COSTS				
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$344,800	$344,800
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$344,800	$344,800
Health and Safety Costs (3% Total Direct Costs)	1	LS	$69,000	$69,000
Project Management & Administration (10% Total Direct Costs)	1	LS	$229,900	$229,900
TOTAL INDIRECT CAPITAL COSTS				**$988,500**
TOTAL CAPITAL COSTS (Direct and Indirect)				***$3,287,050***
O & M COSTS				
Annual Treatment System O&M (1)				
Air Sampling and Analysis - VOCs	116	samples	$150	$17,400
Operation and Maintenance Labor	310	hours	$60	$18,600
Electrical Power	1	LS	$5,000	$5,000
GAC Disposal and Replacement	10,000	lbs.	$2	$20,000

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TABLE B-19

Alternative 6 - In-Well Aeration

IRP Site 11 Cost Estimate

142nd FW, Portland ANGB, Portland, Oregon

DESCRIPTION	QUANTITY		COST	
	Number	Unit	Unit Cost	Total Cost
Reporting	144	hours	$100	$14,400
Well Rehabilitation to Treat Fouling (20% wells / year)	6	wells	$2,000	$12,000
Replacment Costs (3% Total Direct Costs)	1	LS	$69,000	$69,000
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$8,700	$8,700
Engineering and Construction Oversight (15% Total Direct Costs)	1	LS	$8,700	$8,700
Health and Safety Costs (3% Total Direct Costs)	1	LS	$1,700	$1,700
Project Management & Administration (10% Total Direct Costs)	1	LS	$5,800	$5,800
SUBTOTAL				**$181,300**
Groundwater Monitoring Cost Per Event				
Well Sampling Labor and Equipment	23	wells	$480	$11,040
Ground Water Analysis - VOCs (23 wells + 50% QA / QC)	35	samples	$150	$5,300
Ground Water Analysis - MNA Parameters (10 wells + 30% QA / QC)	13	samples	$400	$5,200
Contractor Overhead & Profit (15% Total Direct Costs)	1	LS	$3,200	$3,200
Health and Safety Costs (3% Total Direct Costs)	1	LS	$600	$600
Project Management & Administration (10% Total Direct Costs)	1	LS	$2,200	$2,200
SUBTOTAL				**$27,500**
FIRST THREE YEARS O&M COSTS (treatment O&M and quarterly sampling) (1)				**$873,900**
REMAINING O&M COSTS (annual sampling for 5 years) (2)				**$111,300**
TOTAL O & M COSTS				***$985,200***
TOTAL CAPITAL AND O & M COSTS				***$4,272,250***
General Contingency (30% of Total Capital and O&M Costs)				***$1,281,700***
TOTAL COST OF ALTERNATIVE (PRESENT WORTH)				***$5,554,000***

Notes:

(1) Assume 2 years of system operation

(2) Present worth calculated using equal series present worth analysis where i = 7.5%

FINAL

(Revision1)

PERFLUORINATED COMPOUNDS PRELIMINARY ASSESSMENT SITE VISIT REPORT

PORTLAND AIR NATIONAL GUARD
PORTLAND, OREGON

Prepared For:

Headquarters Air National Guard
Joint Base Andrews, Maryland

April 2016

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Prepared For:

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Prepared By:

BB&E, Inc.
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LIST OF ACRONYMS

AFFF	Aqueous Film Forming Foam
ANG	Air National Guard
AOC	Area of Concern
BB&E	BB&E, Inc.
bgs	below ground surface
BOD5	biochemical oxygen demand 5
CE	Civil Engineering
CRSA	Columbia River Sand Aquifer
EBS	Environmental Baseline Survey
EM	Environmental Management
ERP	Environmental Restoration Program
FD	Fire Department
FTA	Fire Training Area
GPS	Global Positioning System
mg/l	milligrams per liter
NFA	No Further Action
ORANG	Oregon Air National Guard
ORDEQ	Oregon Department of Environmental Quality
PA	Preliminary Assessment
PDX	Portland International Airport
PFC	Perfluorinated Compound
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PHAL	Provisional Health Advisory Levels
PPA	Portland Port Authority
POL	Petroleum, Oils and Lubricants
RI	Remedial Investigation
SI	Site Investigation
TGA	Troutdale Gravel Aquifer
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

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1.0 INTRODUCTION

A preliminary assessment (PA) site visit was conducted by BB&E, Inc. (BB&E) from August 26 – 27, 2015 at the Portland Air National Guard (ANG) Base (the Base), home of the 142nd Fighter Wing in Portland, Multnomah County, Oregon. The site location is shown on Figure 1. The Base is located immediately adjacent and south of the Port of Portland International Airport (PDX) and occupies approximately 245 acres of land leased from the Portland Port Authority (PPA) (ANG, 2013).

The purpose of the visit was to identify potential sites of historic environmental releases of perfluorinated compounds, specifically from Aqueous Film Forming Foam (AFFF) usage and storage, as shown on Figure 2. Prior to the site visit, BB&E conducted research of any documented Fire Training Areas (FTAs) in operation since 1970, or any other use or release of AFFF in accordance with the Final Perfluorinated Compound (PFC) Preliminary Assessment Work Plan (BB&E, 2015). During the site visit, BB&E conducted personnel interviews, reviewed on-site documentation, and toured each potential site.

Individuals contributing to this PA effort included the following:

Roger Rein – Oregon Air National Guard (ORANG), Base Environmental Manager

Harry Danberg – ORANG, Engineering

Michael Godsey – ORANG, Real Property

Rick Fogel – ORANG, Deputy Fire Chief

Lieutenant Nate Osborne – ORANG, Base Fire Department

Thomas Albright – ORANG, Base Plumber

Aviva Johnston – ORANG, Natural Resource Specialist

John LeCarno – ORANG, Base Electrician and Alarms Specialist

Sections 2.0 and 3.0 of this report outline the potential PFC sources identified on the Base property during the records review and site visit, while Section 4.0 provides conclusions and

recommendations for potential follow-on actions. References are included in Section 5.0. Representative photos of the subject sites taken during the site visit are attached as Appendix A. Interview questions and records of communication are presented in Appendix B and other supporting documentation is provided in Appendix C.

1.1 Hydrogeologic Setting

Hydrogeologic information was obtained from the Final Phase II Environmental Baseline Survey (EBS) Site Assessment Report prepared by BEM Systems, Inc. (BEM, 2013). Significant hydrogeologic units are present in the vicinity of PDX. These units include, in descending order, the Overbank Deposits, the Columbia Sand River Aquifer (CRSA), the Troutdale Gravel Aquifer (TGA), Confining Unit 1, the Troutdale Sandstone Aquifer, Confining Unit 2, and the Sand and Gravel Aquifer.

Several hydrogeologic units underlying PDX are part of a regional aquifer system that serves as the City of Portland's supplemental water supply.

The depth to groundwater in wells completed in the Overbank Deposits and the CRSA generally ranges from 2 to 10 feet below ground surface (bgs), depending on location, seasonal influences, and long-term precipitation trends. The inferred groundwater flow direction in the Overbank Deposits is predominantly toward the west and northwest. The groundwater flow direction in the CRSA, indicated by data collected prior to the Phase II Remedial Investigation (RI), was primarily toward the northwest. Water level data collected during a Phase II RI suggests that the groundwater flow direction in the CRSA fluctuates between northeast and south.

Further discussion of area wells is included in Section 3.3.1.1 of this report.

2.0 FIRE TRAINING AREAS

Based on this PA investigation, there is no evidence that an FTA is or was located within the footprint of the Base boundary. ANG Fire training is conducted in conjunction with Port firefighters on PDX property, and until 1979, fire training was conducted by the ANG on PDX property at the closed Environmental Restoration Program (ERP) Site 7 (CH2M Hill, 2006) located immediately east of the Base.

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3.0 NON-FIRE TRAINING AREAS

Non-FTA Areas of Concern (AOCs) are sites where AFFF has been stored or released and may include crash sites, hangars, fuel spill areas, hazardous waste storage facilities, firefighting equipment testing areas, etc. The following section includes a description of any non-fire training AOCs identified during this PA effort including operational history, waste characteristics, and pathway evaluations, as applicable.

3.1 Description, Operational History, and Waste Characteristics

The following are the Non-FTA AOCs that were identified during this PA investigation. Appendix A includes photos of these areas from the August 2015 site visit, and Figure 2 depicts the areas.

3.1.1 Base Supply – Building 170

The Base Supply Building – Building 170 was built in 1990 and is located in the central portion of the Base. The building has stored AFFF for at least the last 10 years, but likely has stored AFFF since its first use on the Base. According to Base supply personnel, no AFFF has been spilled in the building. Currently, twenty-seven 55-gallon drums of AFFF manufactured by 3M and National are stored at this location.

3.1.2 New Fire Department – Building 180

The new Fire Department (FD) Building 180 was constructed in 2005. According to personnel that have worked at the Base FD since the late 1980s, the AFFF stored at this location is currently in Fire/Crash Response vehicles, including three crash trucks (two 25- gallon trucks and one 250-gallon truck), one fire engine (250 gallons), and one foam trailer (2,000 gallons). One former crash truck, awaiting disposal at the motor pool, contained 130 gallons. FD personnel indicated that there were minor spills which occurred during filling the vehicles over the years from on-site containers (now removed), and minor leaks from the equipment. Additionally, at least three occurrences of AFFF being discharged to the stormwater sewer system were documented in the Annual Storm Water Reports. These reports, as well as

schematics showing the locations of the storm water catch basins receiving the AFFF, are included in Appendix C-1.

3.1.3 Hangar 250

Hangar 250 was built in 1985. AFFF is stored in fire suppression equipment in the mechanical room of this hangar. According to the label, the tank has a design capacity of 200 gallons but the net contents are 55 gallons of AFFF. There have been minor leaks of AFFF in this room, with no reported inadvertent releases in the hangar. Currently, no AFFF is present in the hangar, although one empty 55-gallon barrel is currently present. No records of spills are reported to have occurred at this location.

3.1.4 Hangar 255

Hangar 255 was constructed in 1956. AFFF is stored in fire suppression equipment in the mechanical room of this hangar. The placard on the tank states that it contains 600 gallons of AFFF manufactured in 1994. There have been minor leaks of AFFF in this room, with an inadvertent release in the main hangar.

On October 19, 2005, Environmental Management (EM) personnel noticed foam on the pavement near Hangar 255 and questioned the local office personnel. The investigation indicated that the AFFF system in the hangar had been tested earlier that day as part of an annual testing program and 0.5 gallon of pure AFFF mixed with 49.5 gallons of water overflowed the system and was rinsed off the pavement into a storm drain located on the south side of Hangar 255 (see schematic in Appendix C-1). EM personnel reported the incident to the Oregon Department of Environmental Quality (ORDEQ) and further AFFF testing that day was suspended. EM personnel inspected the stormwater ditches and stormwater detention ponds to look for evidence of foam. On October 20, 2005, the ditches and ponds were again inspected and no foam was evident. A sample was collected at Outfall 10 and analyzed for biochemical oxygen demand 5 (BOD5). The actual BOD5 result was greater than 300 milligrams per liter (mg/l) since the high oxygen concentrations saturated the test and could not yield a true value. On October 21, 2005, the stormwater ditch feeding the north pond showed evidence of foam. Six aerators in the north pond and eight aerators in the south pond kicked up small patches of persistent foam covering an estimated area of 16 square feet. By the afternoon that day, the foam

had dissipated. A sample was again collected and analyzed for BOD5 which yielded a concentration of 10 mg/L. The problem was discussed with Civil Engineering (CE) management personnel. CE personnel redesigned the plumbing configuration to prevent future annual AFFF testing at Hangar 255 from discharging to the storm sewer system. Appendix C-1 contains the page from the Annual Storm water report detailing the release.

3.1.5 Old Fire Department and Swale – Building 290

Building 290 was built in 1986 and housed the old FD from approximately 1986 - 2005. According to personnel that have worked in this building since the late 1980s, AFFF was historically stored at this location in Fire/Crash Response vehicles. FD personnel indicated that there were minor spills which occurred during the filling of vehicles over the years from on-site containers (now removed), and minor leaks from the equipment. Additionally, personnel indicated at least one spill of AFFF of unknown quantity discharged to the drainage swale northwest of the building.

3.1.6 Hangar 310

Hangar 310 was built in 1988. AFFF is stored in fire suppression equipment in the mechanical room of this building. There are three tanks in the room, very similar in size to the tanks in Hangar 375, although there were no volumes listed on the tanks. It is presumed that two of the tanks contain 800 gallons and one contains 600 gallons. The date of manufacture listed on the tanks is 1987. There have been minor leaks of AFFF in the room, with an inadvertent release in the main hangar. It is likely that most of the inadvertent release of AFFF was hosed off into the floor drain within the hangar which is connected to the sanitary sewer system. Some of the AFFF would also likely have made its way onto the ramp to the north of Hangar 310, and then into the storm sewer system.

3.1.7 Hangar 380

Hangar 380 was built in 1986. AFFF was stored in fire suppression equipment in the mechanical room of this building. There currently are no tanks in the room. It is reported that the tanks were removed in 2005. Personnel interviewed did not know of any discharges in the room or in the main hangar.

3.1.8 Hangar 375

Hangar 375 was built in 1988. AFFF was stored in fire suppression equipment in the mechanical room of this building. There are three tanks in the room with no labels listing their volumes. It is presumed that two of the tanks contain 800 gallons and one contains 600 gallons. There have been minor leaks of AFFF in the room, with an inadvertent release in the main hangar. It is likely that most of the inadvertent release of AFFF was hosed off into the floor drain within the hangar which is connected to the sanitary sewer system. Some of the AFFF would also likely have made its way onto the ramp to the north of Hangar 375, and then into the storm sewer system.

3.1.9 POL Storage – Building 431

Petroleum, Oils and Lubricants (POL) are stored in Building 431 which was constructed in 1994. This building formerly contained the AFFF system tank that provided fire protection for the fuel tanks. No leaks or inadvertent discharges were reported and the system was removed in 2013.

3.1.10 Ponds/Stormwater Retention Basins

There are two man-made, shallow ponds located in the west central portion of the Base that receive 95% of the Base's stormwater discharge. These ponds are fed by ditches which converge just north of the ponds where the stormwater is discharged into the ponds through a pipe. All of the previously aforementioned releases to the storm sewer system eventually made their way to these two ponds. The ponds are located near the western boundary of the Base, as shown in Figure 2.

3.2 Pathway and Environmental Hazard Assessment

The following is a preliminary evaluation of the threats and targets associated with each potential exposure pathway. In their anionic forms, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are water soluble and can migrate readily from soil to groundwater. The United States Environmental Protection Agency (USEPA) has not established Provisional Health Advisory Levels (PHALs) for PFOS and PFOA in soil (USEPA, 2014). The primary exposure pathway for PFOS and PFOA would be the ingestion of contaminated drinking water.

3.2.1 Groundwater

Groundwater at the Portland ANG Base is currently not being used. There is no evidence of PFCs in groundwater at the Base. However, based on historical practices, they may be present in the groundwater in the following areas:

- New Fire Department – Building 180
- Hangars 255, 310, and 375
- Old Fire Department – Building 290
- Ponds/stormwater retention basins

3.3.1.1 Water Wells

A review of the EDR Radius Map™ Report with Geocheck® dated July 21, 2015 shows 153 water wells within a one-mile radius of the Base (Appendix C-2) (EDR, 2015). One well is listed on the United States Geological Survey (USGS) database which usually lists monitoring or test wells. Other than a construction date of 1959, no additional relevant information was provided about this well. The remaining 152 water wells listed in the EDR Report are on the state's database. The majority of these wells appeared to be monitoring wells and none were listed as potable wells.

The City of Portland has a well field approximately 0.75 mile southeast of the Base which is used as a supplemental water supply for the City of Portland. The location of the well field is included in Appendix C-3. In addition, information provided from the 2006 EBS shows several additional water wells around the Base. Two water wells were identified in the EBS within a 1-mile radius of the property (EDR 2005). However, these wells are not listed as existing wells on the State of Oregon Water Resources Department, online Well Log Query (http://www.wrd.state.or.us). In addition, Roger Rein, the 142 FW Environmental Manager, provided a list of eight unregistered wells that are located between 0.75 and 1.25 miles from the base. These wells are included in a table presented in Appendix C-3. According to Mr. Rein, some of these wells are used for domestic consumption.

3.2.2 Soil

No documentation was available showing that soils at the Portland ANG Base have been tested for PFCs; therefore it is unknown whether PFCs are present in the soil. However based on historical practices, they may be present in the soil in the following areas:

- Hangars 255, 310, and 375
- Old Fire Department – Building 290

3.2.3 Sediment

No documentation was available showing that sediments at the Portland ANG Base have been tested for PFCs; therefore it is unknown whether PFCs are present in sediments. Based on historical practices, PFCs could be present in sediment at the Ponds/Stormwater Retention Basins that have received drainage from the following locations:

- New Fire Department – Building 180
- Hangars 255, 310, and 375
- Old Fire Department – Building 290

3.2.4 Surface Water

Surface water at the Base is dictated by the Base's man-made surface drainage system. Based on historical evidence, PFCs could be present in the surface water of the Ponds/Stormwater Retention Basins that have received drainage from the following locations:

- New Fire Department – Building 180
- Hangars 255, 310, and 375
- Old Fire Department – Building 290

Drainage patterns at the Base and its surrounding areas are included in Appendix C-4. A few potential environmentally sensitive areas around the Base are identified to be on the National Wetland Inventory according to the EDR Report (EDR, 2015), as shown in Appendix C-5.

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4.0 FINDINGS AND CONCLUSIONS

Ten potential AOCs have been identified at the Base during this PA as summarized in Table 1. Of these ten sites, nine are recommended for further investigation to characterize potential PFC contamination.

Sampling of soil, groundwater, surface water, and sediments at these AOCs is recommended at a minimum to evaluate the potential migration of PFCs. In addition, verification of the structural integrity of the trench drains, sanitary sewer and stormwater sewer is also advised.

Table 1 summarizes the recommendation and rationale for each AOC identified at the Base.

Table 1: Preliminary Assessment Report Summary and Recommendations

No.	Potential AFFF PFC AOC	GPS Coordinates		Rationale	Recommendation
		Latitude	Longitude		
1	Base Supply – Building 170	45.577606°	-122.59358°	The station has stored AFFF at this location for at least the past ten years. According to Base personnel, no AFFF was spilled in the building.	NFA
2	New Fire Department – Building 180	45.578619°	-122.59530°	FD personnel indicated that there were minor spills which occurred during filling the vehicles over the years from on-site containers and minor leaks from the equipment. Additionally, at least three occurrences of AFFF being discharged to the stormwater sewer system were documented in the Annual Storm Water Reports.	Proceed to SI. Focus on groundwater.
3	Hangar 250	45.579040°	-122.58996°	Minor leaks of AFFF have occurred in the mechanical room. There are no records of inadvertent releases in the hangar; however, if releases did occur, they may have potentially impacted the adjacent ramp	Proceed to SI. Focus on soil and groundwater at the downgradient edges of the ramp based on surface drainage patterns.
4	Hangar 255	45.578432°	-122.59150°	Minor leaks of AFFF have occurred in the mechanical room, with one inadvertent release in the main hangar. It is likely that most of the inadvertent release of AFFF was hosed off into the trench drain that connects to the sanitary sewer systems, with some of the AFFF making its way onto the ramp, and then into the storm sewer system.	Proceed to SI. Focus on soil and groundwater at the downgradient edges of the ramp based on surface drainage patterns.

Table 1: Preliminary Assessment Report Summary and Recommendations

No.	Potential AFFF PFC AOC	GPS Coordinates		Rationale	Recommendation
		Latitude	Longitude		
5	Old Fire Department and Swale – Building 290	45.579859°	-122.59562°	FD personnel indicated that there were minor spills which occurred during filling the vehicles over the years from on-site containers and minor leaks from the equipment. Additionally, at least one occurrence of AFFF being discharged to the stormwater sewer system is documented in the Annual Storm Water Reports. Reports of AFFF making its way to the drainage swale have also been documented.	Proceed to SI. Focus on soil, sediment, surface water and groundwater.
6	Hangar 310	45.580564°	-122.59673°	Minor leaks of AFFF have occurred in the mechanical room, with an inadvertent release in the main hangar. It is likely that most of the inadvertent release of AFFF was hosed off into the trench drain that connects to the sanitary sewer systems, with some of the AFFF making its way onto the ramp, and then into the storm sewer system.	Proceed to SI. Focus on soil and groundwater at the downgradient edges of the ramp based on surface drainage patterns.
7	Hangar 380	45.581593°	-122.59977°	AFFF was stored in fire suppression equipment in the mechanical room of Hangar 380. The fire suppressions system tanks are no longer present and were reportedly removed in 2005. There were no known discharges in the room or in the main hangar; however, if releases did occur, they may have potentially impacted the adjacent ramp	Proceed to SI. Focus on soil and groundwater at the downgradient edges of the ramp based on surface drainage patterns.

Table 1: Preliminary Assessment Report Summary and Recommendations

No.	Potential AFFF PFC AOC	GPS Coordinates		Rationale	Recommendation
		Latitude	Longitude		
8	Hangar 375	45.582156°	-122.60075°	Minor leaks of AFFF have occurred in the mechanical room, with an inadvertent release in the main hangar. It is likely that most of the inadvertent release of AFFF was hosed off into the trench drain that connects to the sanitary sewer systems, with some of the AFFF making its way onto the ramp, and then into the storm sewer system.	Proceed to SI. Focus on soil and groundwater at the downgradient edges of the ramp based on surface drainage patterns.
9	POL Storage – Building 431	45.578289°	-122.59729°	This building formerly contained the AFFF system tank that provided fire protection for the fuel tanks.	Proceed to SI. Focus on soil and groundwater.
10	Ponds/storm water retention basins	45.579761°	-122.60219°	These two ponds receive 95% of the Base's stormwater discharges. All of the previously aforementioned releases to the stormwater system eventually made their way to these two ponds.	Proceed to SI. Focus on sediment, surface water and groundwater.

AFFF – Aqueous Film Forming Foam
PFC – Perfluorinated Compound
AOC – Area of Concern
GPS – Global Positioning Satellite
NFA – No Further Action
FD – Fire Department
SI – Site Investigation
POL – Petroleum, Oils and Lubricants

5.0 REFERENCES

ANG, 2013. Compliance Restoration Program – Western Region 1. Revised Final Site Investigation Report. December.

BB&E, Inc. 2015. Final Perfluorinated Compound (PFC) Preliminary Assessment Work Plan, Prepared for Headquarters Air National Guard Andrews AFB, Maryland. July.

BEM Systems, Inc. 2013. Final Phase II Environmental Baseline Survey Site Assessment Report. October.

CH2M Hill, 2006. Final Environmental Baseline Survey. April.

EDR, 2015. EDR Radius Map™ Report with Geocheck®. July.

USEPA, 2014. Peer Review of Health Effects Documents for PFOA and PFOS. February.

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FIGURES

NORTH

0 1,5 3

Miles

Figure 1
Site Location Map

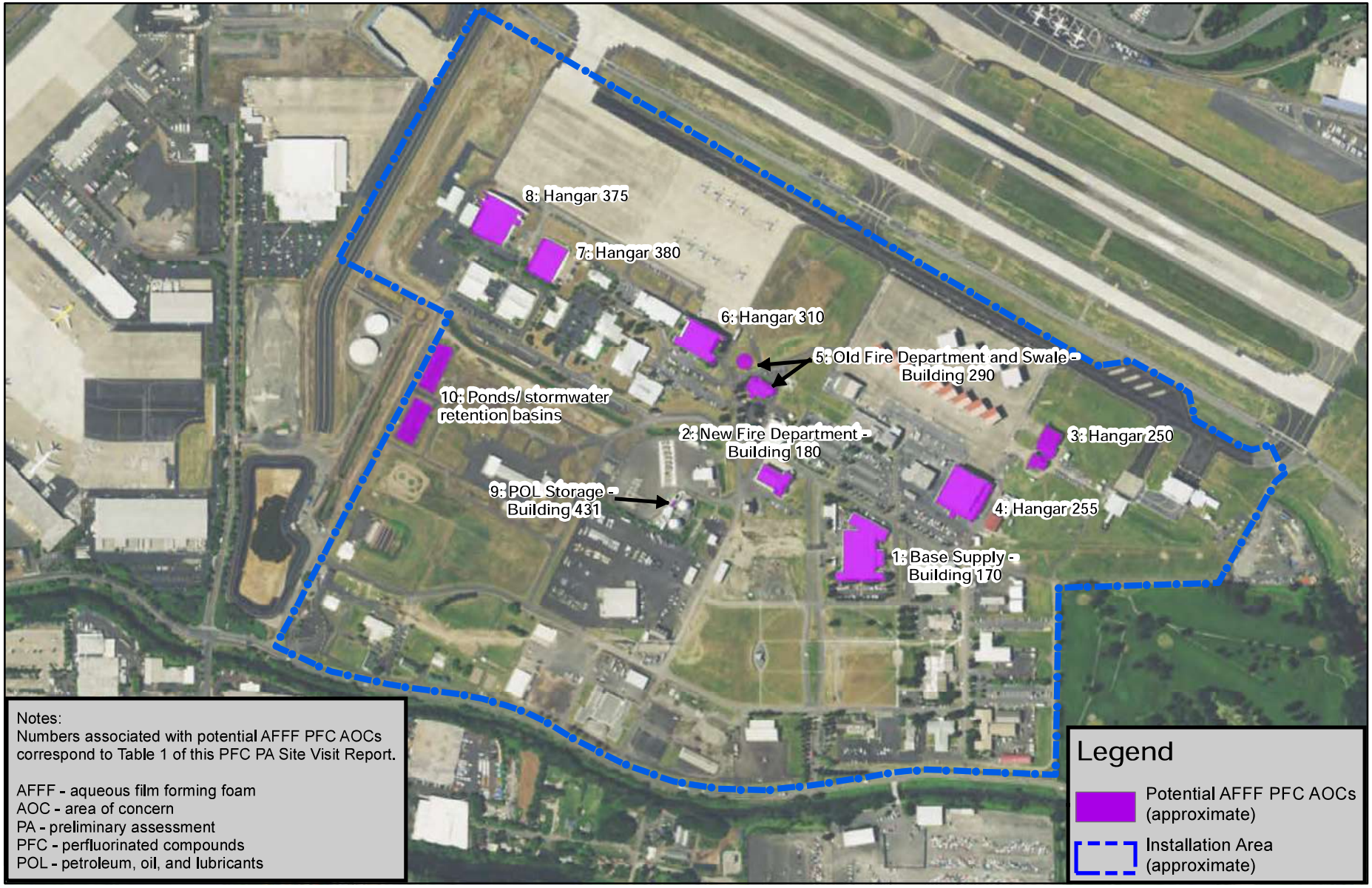
Portland Air National Guard Base - Portland International Airport
Portland, Oregon

BB&E

Document Path: H:\IT\GIS\ANG\AFFF PFC\Portland\Site Location Map Portland.mxd

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS

KMA 8/31/2015



NORTH

0 500 1,000

Feet

Figure 2
Site Features Map and Potential AOCs

Portland Air National Guard Base
Portland, Oregon

BB&E

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
KMG 9/2/2015

Document Path: H:\IT\GIS\ANG\AFFF PFC\Portland\Site Features Map Portland.mxd

APPENDIX A

PHOTO DOCUMENTATION

Appendix A
Portland ANG Base, PFC PA Site Visit, Portland, OR – August 26-27, 2015

Photo 1: Hangar 255 storm drains on south side of building.

Photo 2: AFFF storage in mechanical room on east side of Hangar 310.

Photo 3: AFFF storage (behind double doors) at Hangar 375.

Photo 4: AFFF cannon at Hangar 375.

Photo 5: AFFF storage in Building 170.

Photo 6: AFFF storage room on south side of Hangar 255.

Photo 7: AFFF storage room on southeast side of Hangar 380.

Photo 8: AFFF tank in Hangar 250.

Photo 9: AFFF tanks in Hangar 310.

Photo 10: AFFF tanks on Hangar 375.

Photo 11: AFFF tank in Hangar 255.

Photo 12: Former location of AFFF tanks in Hangar 380.

Photo 13: Former location of AFFF tanks in Building 431.

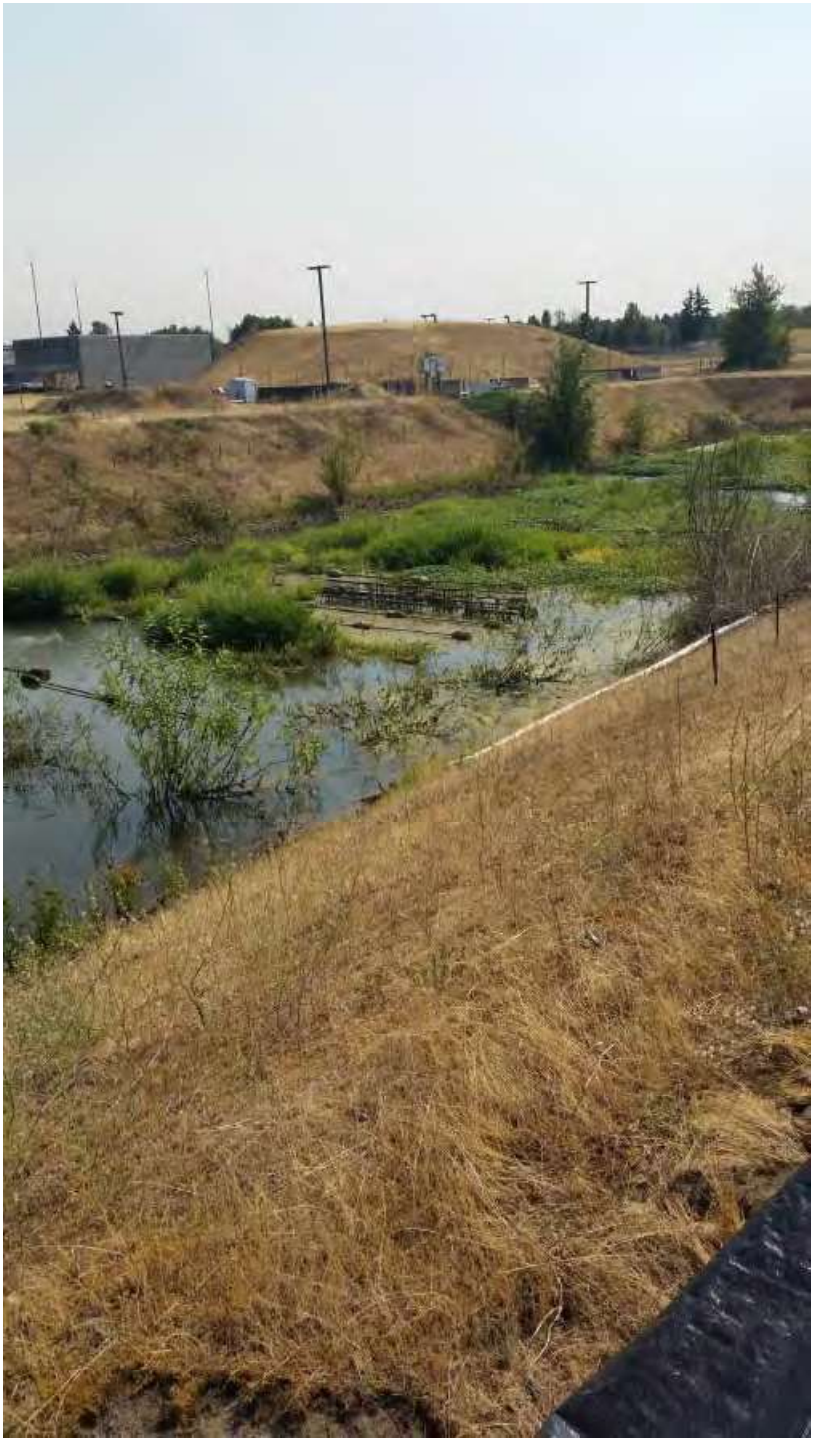


Photo 14: Ponds at west central side of Portland ANG Base.

Photo 15: Storm Drain at new fire department (Building 180).

Photo 16: Storm drain northeast of Hangar 375.

Photo 17: Storm drain northwest of Hangar 375.

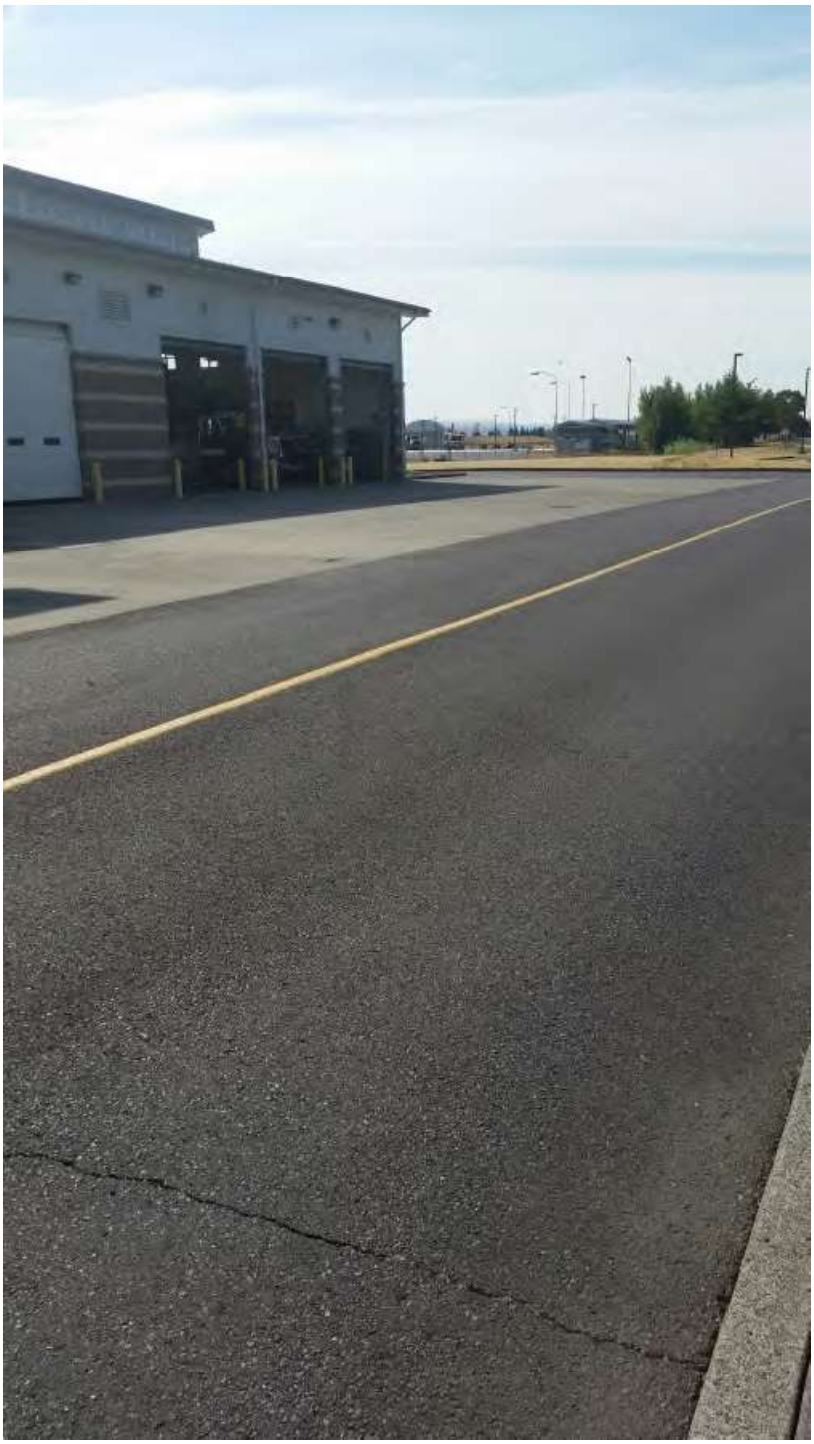


Photo 18: Storm drains in front of new fire department (Building 180).

Photo 19: Swale by Building 290, looking east.

Photo 20: Location, looking south, where ditches converge, north of the ponds.

APPENDIX B

INTERVIEW QUESTIONS AND RECORDS OF COMMUNICATION

142nd FW Portland, OR
see interview
26 Aug 2015
0900 HRS

see sign in sheet attendees for this interview

Interview Questions regarding AFFF use
(At Present and back to 1970)

all had AFFF exposure

250
255 – has AFFF late 70's, early 80's
310
380
375 POL

180 – New FD – Formerly stored
(290 OLD FD had AFFF)

1. When did AFFF first start being used on this installation?

FD – 20 some years
Mostly 6%

AFFF was on base in 1988 when Roger arrived.

2. What are the years of active use for each Fire Training Area (FTA), Aircraft Hangar, Fire Department, other places AFFF may have been used (collectively Potential Areas of Concern (PAOC)?

No FTA on base – on Port of Portland property

3. What type of AFFF is used or has been used on this installation (i.e. 3%, 6%, High Expansion Foam)?

– some stored in Bldg 170

Mainly 6%
some 3%

They have HEF – but are not concerned

4. ~~What~~ manufacturer's AFFF products are used or were used on this installation (i.e. 3M, Ansul, Chemguard, etc.)?

currently stored @ 170

5. Did you ever dispose of old bulk AFFF, if so, when and where?

Yes, Roger go through DLA. (A) ✓

6. Is the AFFF stored as a mixed solution (3% or 6%) or do you formulate the AFFF on the installation?

see above

7. If AFFF is formulated on base, where is the solution mixed, contained, transferred, etc.?

NO

8. Are your automated fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam?

250
255
310
} currently

380 used to
375 may have AFFF

9. If retrofitted, when was that done?

- new MEF systems only
- no retrofitting

10. Do you have an inventory of the amount of AFFF stored on the installation, now and in the past, or present in automated fire suppression systems? Were retention ponds built to store discharged AFFF? Was the AFFF trickled to the sanitary sewer or left in the pond to infiltrate?

Bldg 170 - FD - only on trucks

NO

Testing of systems - Backentank for sanitary

11. Provide a list of vehicles that carried AFFF, now and in the past, and where are/were they located? Any vehicles have a history of leaking AFFF?

yes, minimal amount

3 crash trucks — 25 gal
" " — 250 gal
1 engine - 50 gal
1 Foam trailer - 2000 gal

(former) P19 - 136 gal
P19 - 250 (now)

former P19 old crash POL in carries 130

12. How much AFFF (gallons) is/was carried/stored in the specified vehicles?

see above

13. Do you ever dispose of unused AFFF? If so, how and where?

(A) Yes, Goes through Roger

14. Has unused AFFF ever been disposed of in the past? If so, how and where?

(A) Yes, check w/ Roger

15. Do you/did you test the vehicles spray patterns to make sure equipment is working properly?

Yes, but on Post Property

16. How often are/were these spray tests performed and can you provide the locations of these tests, now and in the past?

annual

17. Can you describe the procedure on how vehicles and systems are/were supplied with AFFF?

pouring or pump from Foam trailer

18. Can you provide the procedures on how these vehicles are/were cleaned/decontaminated and where vehicle cleaning is performed currently as well as performed in the past?

auto soap - washed inside.

19. Is/was there a specified area on the installation where vehicles are filled with AFFF and does this area have secondary containment in case of spills?

~~No~~ ~~to~~ Primarily in Fire Station

20. When a release of AFFF occurs during a fire training exercise, now and in the past, how is the AFFF cleaned and disposed of?

at Port

✓(A) - some spilled @ Bldg 290 in swale.

21. How many FTAs are/were on this installation and where are they?

None

22. How many FTAs are active and inactive?

None

23. What types of fuels/flammables were used at the FTAs?

N/A

24. For inactive FTAs, when was the last time that fire training using AFFF was conducted at them? Find out ahead of time in Admin Record for former FTAs.

N/A

25. What are/were the non-FTA locations where PFCs or AFFF release systems are installed (i.e. Hangars, Wastewater Treatment Plants, Fire Stations, etc.)? Where are/were these locations (Building numbers)?

NO

See previous

26. Do you have a list (Building names and numbers, current and demolished) where the fire suppression systems either currently contain or have contained AFFF?

See previous

27. Do you have records of fuel spill logs and emergency response logs? Knowledge of aircraft mishaps/crashes?

Do not use AFFF on Fuel spills.

Used on ag equip, small issues east apron

28. Do you have recollection or records of AFFF being used as a precaution in response to fuel releases to prevent fires?

No.

29. Do you have recollection or records of historical emergency response sites (i.e. crash sites and fires) where AFFF was used?

On Port Property

30. Do you have recollection or record of emergency runway landings where foam might have been used as a precaution?

No

31. If not written records or incomplete written records, do you have anecdotal/verbal information and locations of spills or other emergency response incidents where AFFF was used?

F

No.

√ w/ Scott.

32. What is the typical procedure for removing dispensed AFFF from an area where it has been used?

- First try to contain it.
- Flush into drains - sanitary

33. Can you provide any other locations where AFFF has been stored, released, or used (i.e. hangars, buildings, fire stations, firefighting equipment testing and maintenance areas, emergency response sites, storm water/surface water, waste water treatment plants, and AFFF ponds)?

180
290
170
plus hangar

34. Do you have or did you have a chrome plating shop on base? If no, skip to Question #38.

No

35. What were/are the years of operation of that chrome plating shop?

N/A

36. Do you know whether the shop has/had a foam blanket mist suppression system or used a fume hood for emissions control?

N/A

37. If foam blanket mist suppression was used, where was the foam stored, mixed, applied, etc.?

N/A

38. Is there anyone else or other base organization personnel that you would recommend we interview? Name, organization, position, phone number, e-mail.

A J w/him tomorrow → A John LeCarno ← alarm technician

39. Was it common practice to wash away fuel spills with AFFF?

NO

40. Identify drainage patterns around flightline/ramp area. Point source discharge is likely AFFF Area of Concern (AOC).

See Drwgs

& City of Portland well field is east of the base - see Fig 1-2 in 2006 EBS

142nd Fighter Wing 26 Aug 2015

PFC PA Site Visit (Portland, OR) 0900hrs

Sign in

on base

Roger Reim, Environmental Manager (since 1988)

Harry Dawkins, 142 CES/Engineering (since 2003)

Michael Godsey 142CES/Real Property (since 1995)

Foger Rick M 142 FMS (Dep Chief) (since 2011)

Osborne Nate Fire, Lt. (on base (1997)

142nd FW
Portland, OR 26 Aug 2015

Meeting Notes

Thomas Albright, Base Plumber (at base, since 1999)
- AFFF still in Bldg 375 (going to Port @ end of fiscal year)
- All 300 Bldgs are former AFRC, left in 2008. Flying presence

- Bldg 170 - storage of AFFF
- Bldg 250 - currently has AFFF
- " 255 - has AFFF
- " 290 - had AFFF
- " 310 - has AFFF - weapons release + munitions trng
- " 380 - former AFRC - had AFFF in 11 2005
- " 375 - " " - has AFFF in system

142nd FW
Portland, OR

26 Aug 2015

Aviva Johnston - @ base since 2001
Nat. Resource ~~Ex~~ Specialist II

- ~~Extir~~ All sanitary lines (Mains) were replaced in 2013 south of ~~2013~~ O Connor (those which were in bad shape)

- Northern Sanitary lines were inspected via camera and were found to be in Good condition. This is where AFFF discharges took (hangar, FD, etc.)

No Sam

- Aviva wrote reports on Annual SW that detail AFFF discharge incidents. - we have copies

142nd FW
Portland, Oregon

27 Aug 2015

John LeCarno, Electrician, been @ base 23/24 years.

John took me around to view AFFF sys
in different Hangar

✓ 250 Hangars - AFFF tank present - not contents 55 gals / Marked 200 gal design capacity
minor leaks in room, no inadvertant releases to John's knowledge

✓ 255 Hangar - AFFF present, 600 gallons on placard on tank
* hangar had inadvertant release onto ramp, tank mfrd 1994, minor leaks in rooms

✓ 310 Hangar - AFFF still present (similar to 375 ~~[illegible]~~ - no markings), minor leaks in room, 3 tanks, couldn't find volume
* Hangar had inadvertant release, went onto ramp, tank mfr 1987

✓ 380 Hangar - AFFF tanks gone, No recollection of discharge

✓ 375 Hangar (to be turned over to Port in Dec 2015)
3 AFFF tanks, 800, 600, 800 gallon tanks
1987, 1986, 2005

* Inadvertant release from hangar, minor leaks in room

275 - has HEF, never had AFFF

142ND FW 8/27/2015

- Portland, OR -

(Discussion w/ Roger Rein)

Testing of AFFF systems was done w/ water (sometimes collected in a Baker tank) & often discharged into sanitary sewer

AFFF is profile #130

130B is not AFFF

Records of AFFF leaving base

- shipped out to DRMO (or DLA)
- Roger sent email to me w/ records (2008 to present)
  - had electronic records back to 2008
  - prior to 2008, hardcopies are available
  - Roger arrived @ base in 1988

- went through archived paper files, found several examples of AFFF Disposal through DRMO.

APPENDIX C

SUPPORTING DOCUMENTATION

APPENDIX C-1

STORMWATER REPORTS

DISCUSSION OF SPRING BENCHMARK EXCEEDENCES AND SUSPECTED CAUSES

Spring stormwater samples showed exceedances at Outfall 008. Phosphorus results showed levels at 0.40 mg/L and oil and grease results showed 12 mg/L. This outfall contains stormwater that is co-mingled the Port of Portland stormwater. Prior to the change in the drainage infrastructure, stormwater from a corner the runway owned by Port of Portland, flowed over a grassy area. Stormwater from the tarmac now flows into a catch basin that is directly piped into PANG's sampling basin. It is suspected that oil and grease from taxiing aircraft impacted stormwater samples. A long-term phosphorus investigation is currently being conducted and a report will be forwarded to DEQ upon completion. Anticipated completion date is September 2005.

The EM office is aware that samples from Outfall 008 are not exclusively representative of PANG's stormwater. Future plans to increase sampling efforts by retrofitting the Port of Portland's drainage pipeline with a sampling basin will allow the Port's stormwater impacts to be subtracted out from the co-mingled stormwater samples.

UNPERMITTED DISCHARGES TO STORMWATER

On September 20, 2004, while conducting field work, Environmental Management personnel noticed the far west end of the Guard apron undergoing reconditioning of the pavement joints. This operation did not appear to be significant at the time. On October 28, 2004 at 11:00 Environmental Management personnel noticed that joint removal operations on the Guard apron had generated fines and that equipment had spread the fines over approximately 3 acres of tarmac. DEQ was notified of the incident and the following week custom "dead end flow" stormwater traps were installed in the catch basins draining to Outfall 050. On November 18, 2004 six inches of standing water interfered with flight line operations prevention aircraft from flying. Traps were removed and contents disposed. November 24, 2004 new traps installed to collect residual fines on the apron. On December 7, 2004 six inches of standing water interfered with flight line operations preventing aircraft from flying. Storm drain traps were removed and contents disposed. Civil Engineering personnel, managers of base construction projects, were once again reminded of NPDES II construction requirements for disturbing an acre or more of surface areas.

In December 2004 shop personnel in Building 160 squeegied water from a floor into a trench drain located inside the building. This trench drain was identified during an illicit discharge survey conducted last summer as being connected to the stormwater system. On June 13, 2005 the trench drain outlet was plugged with concrete to prevent discharges to storm.

April 6, 2005 at about 2:30 PM, EM personnel noticed a contracted construction worker using a hose to discharge very brown water, flushing from a newly installed fire suppression system in the new Fire Station, into a storm drain. The worker was told to stop the discharge immediately. The Army Corps of Engineer's point of contact was informed again that construction related discharges are not allowed to storm. A

Bldg 180

construction contractor training program for base stormwater policies was implemented as a BMP to prevent reoccurrence.

In mid April, 2005 EM personnel noticed a small pile of detergent flakes and suds in a parking lot indicating that vehicle washing was recently performed. The Environmental Manager informed the nearby shop in Building 165 that washing vehicles in the parking lot violates the stormwater permit and in the future to wash vehicles at a wash rack that is plumbed to an oil water separator.

On April 22, 2005 at 10:30 EM personnel noticed a contractor had connected dewatering discharge to a stormwater drain. EM personnel stopped the discharge and dewatering discharge was later connected to sewer. Dewatering to storm water had begun on April 18, 2005 at 15:10.

On April 26, 2005 at approximately 13:00 EM personnel and contractors noticed strong fuel vapors coming from a stormwater ditch located next to the POL compound. A large sheen was observed. The base Environmental Manager contacted Dan Hafly at DEQ who is provided clean-up oversight. A sample of sheened water was collected at Outfall 010 on May 6, 2005. Analysis showed that the concentrations of gasoline, diesel, and heavy oil hydrocarbons were less than 0.250 mg/L, 0.630 mg/L, and 0.630 mg/L respectively. The cumulative concentrations were below the 10.0 mg/L benchmark for oil and grease.

On May 3, 2005 at 8:30 EM personnel were informed of an improvised wash area over a storm drain located outside of CE shops. The managers of the CE shops were notified via email that rinsing Roads & Ground equipment at this wash area violated the stormwater permit and that all washing or rinsing activities must be done only at the approved wash areas on base.

On May 3, 2005 at 3:00 EM personnel were informed of rinsing hydraulic fluid from hard to reach spaces inside of aircraft. Rinsing operations apparently were performed on the Guard apron approximately two to three times per month. On May 19, 2005 EM notified the shop in writing to move rinsing operations inside a hangar where rinse water will be directed to an oil / water separator for pre-treatment and then discharged into the sanitary sewer system. The Environmental Manager also spoke with the shop manager to emphasis the importance of complying with the stormwater permit regulations.

On May 12, 2005 EM personnel witnessed two janitorial contractors pour a mop bucket full of soapy water into a storm drain. EM personnel directed the janitors to pour all buckets of water down drains located inside of buildings. Janitors stated they were unaware of the policy and in the future would comply. Interviews with other contracted janitors on base indicated additional discharges of mop water to stormwater drains due to logistic problems with sanitary sewer drains. EM requested Civil Engineering Dept, the janitorial contract managers, to address the logistical problems and base stormwater policies in the base janitorial contract.

DISCUSSION OF SPRING BENCHMARK EXCEEDENCES AND SUSPECTED CAUSES

There were no exceedances of benchmarks for the Spring sampling event.

The EM office is aware that samples from Outfall 008 are not exclusively representative of PANG's stormwater. Future plans to increase sampling efforts by retrofitting the Port of Portland's drainage pipeline with a sampling basin will allow representative sampling.

UNPERMITTED DISCHARGES TO STORMWATER

On August 23, 2005 personnel from Base Environmental noticed interior and exterior vehicle washing of a sweeper truck at a location near Outfall 10. The Civil Engineering (CE) department managers were notified that this operation violated the base wash water permit and that vehicle wash water needed to discharge to sewer. Further investigations indicated that sweeper truck washings have occurred near Outfall 10 for the past 30 years. As of September 7, 2005 CE implemented a wash rack plumbed to sanitary sewer to accommodate all discharges from the sweeper trucks including stormwater and have directed operators to wash the sweeper trucks at this designated wash rack.

On October 12, 2005 approximately 100 gallons of co-mingled rain water and ground water from two vaults were discharged by CE personnel to stormwater from 7:30 to 8:45 A.M. CE personnel were reminded that dewatering activities must be discharged to sanitary sewer.

On October 19, 2005 Environmental Management personnel noticed foam on the pavement near B-255 and questioned the local office personnel. The investigation indicated that the Aqueous Film forming Foam (AFFF) system in the building had been tested earlier that day as part of an annual testing program and 0.5 gallons of pure AFFF mixed with 49.5 gallons of water overflowed the system and was rinsed off the pavement into a storm drain located on the south side of B-255. Environmental Management personnel reported the incident to DEQ and further AFFF testing that day was suspended. The problem was discussed with CE management personnel. CE personnel redesigned the plumbing reconfiguration to prevent future annual AFFF system's testing at B-255 from discharging to storm. Environmental Management personnel walked the stormwater ditches and stormwater detention ponds looking for evidence of foam. On October 20th the ditches and ponds were again inspected and no foam was evident. A sample was collected at Outfall 10 and analyzed for BOD5. The actual BOD5 result was greater than 300 mg/L since the high BOD saturated the test and could not yield a true value. On October 21 the stormwater ditch feeding the north pond showed evidence of foam. Six aerators in the north pond and eight aerators in the south pond kicked up small patches of persistent foam covering an estimated area of 16 square feet. By the afternoon that day the foam dissipated. Again a sample was collected and analyzed. Results showed BOD5 at 10 mg/L.

OTHER NON-COMPLIANCE ISSUES

Bldg 180

On September 8, 2006 an AFFF spill occurred near the Fire Station. Fire Department personnel washed the spill down a nearby catch basin and then called the Environmental Manager. Since the catch basin was deep and fairly dry from lack of summer rains, the basin contained the spill completely. The spill/wash water was pumped out of the catch basin and containerized. FD personnel used a large roller mop to collect the remaining pooled AFFF from the pavement. The Environmental Manager reiterated to the Fire Department not to wash spills into storm drains.

On April 5, 2007 and April 12, 2007 personnel from Base Environmental witnessed a contracted janitor dump mop water down a storm drain. On May 9, 2007 the Environmental Manager received notice from an administrative employee at Portland Rehab and agreed that janitorial employees will comply with Stormwater permit regulations. The administrative employee affirmed that rehab employees have been directed to pour mop water down sanitary sewer lines instead of stormwater drains.

Schedule A, Item 3(c)(iv) requires mandatory stormwater training within 30 days of hire and annually thereafter. Annual mandatory stormwater training in a PowerPoint format was made available for base personnel at the Fire Station where a training tracking system was already in place for spill awareness and spill response. As of June 2007 the Deputy Fire Chief was not aware of any stormwater or spill training events for the period from July 1, 2006 through June 2007. The mandatory annual training requirement was discussed throughout quarterly meetings of the Environmental Protection Committee. The Base Commander is currently in the process of routing a letter to the Base Department Chiefs for recruiting training support. A compliance date with this requirement has yet to be determined.

Schedule A, Item 3(c)(i)(2) requires that oil water separators, booms, skimmers or other methods must be employed to eliminate or minimize oil and grease contamination of stormwater discharges. September 2006 the Environmental Manager submitted a work request repair the skimmer at the north pond that receives approximately 95 percent of the base stormwater. The repair is still pending. A compliance date with this requirement has yet to be determined.

Phase II of an Illicit Discharge survey was conducted in the fall of 2006. The survey revealed a trench drain inside Building 275 discharged to the storm water system. September 2006 the Environmental Manager submitted a work request to plug the pipe inlet to prevent illicit discharges. Records show the repair was completed October 2006.

Phase II of an Illicit Discharge survey was conducted in the fall of 2006. The survey confirmed an abandoned oil water separator in Building 188 discharged to the storm water system. A record search showed that no work requests after September of 2006 were submitted to plug the floor drain or remove the oil water separator or check for possible soil contamination. Work request orders were submitted June 26, 2007 to plug

OTHER NON-COMPLIANCE ISSUES

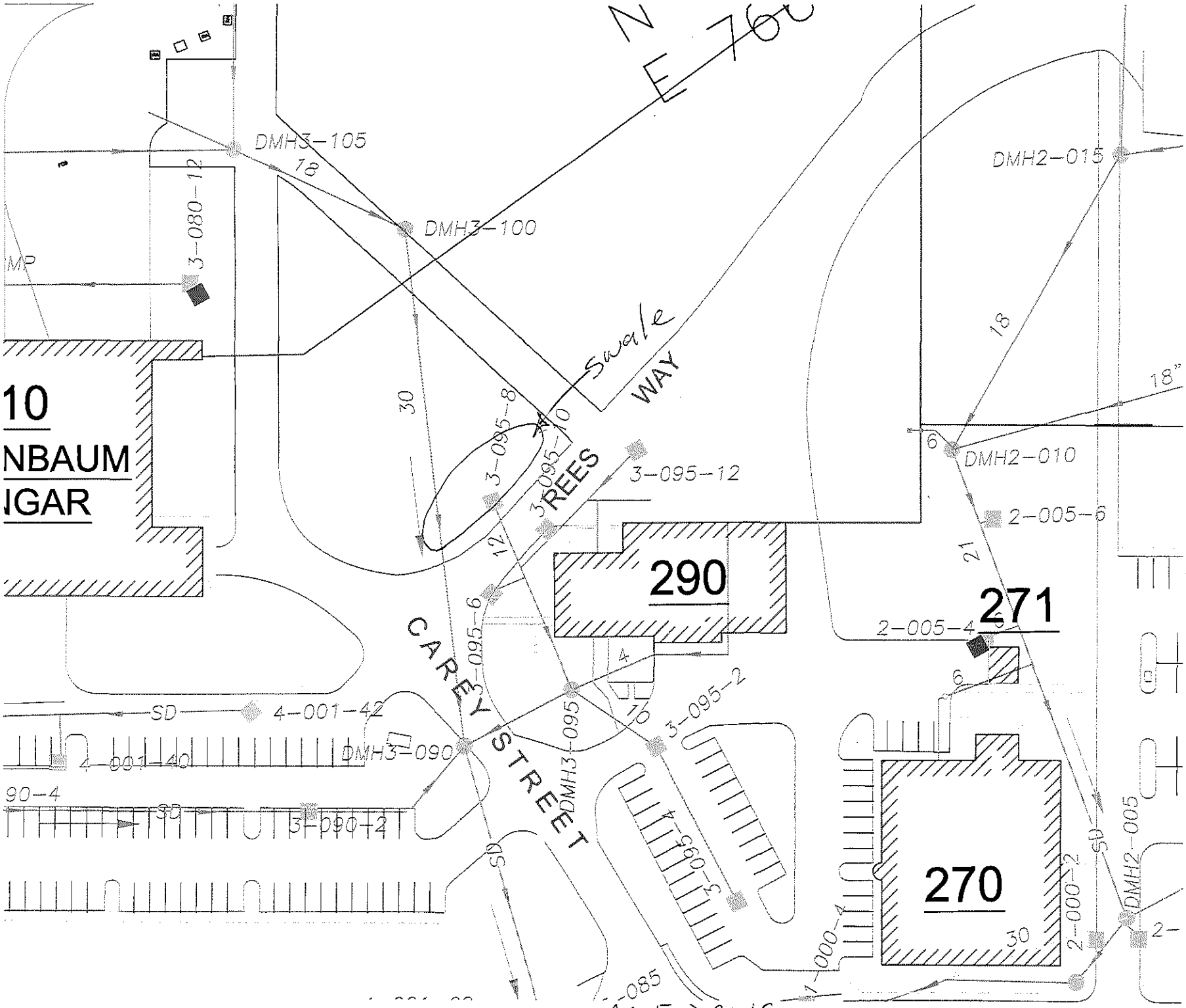
On July 15, 2008 environmental personnel noticed a Blue Bird Bus being washed at the base vehicle wash rack. The overspray and spray off the large vehicle exceed the catchment area on all four sides. The cause was an undersized wash rack that causes overspray and ricochet spray to reach beyond the sloped catchment pad. Environmental personnel again alerted the Environmental Manager of the problem. During the 2007-2008 period of stormwater compliance reporting, the environmental manager scheduled an annual Environmental Management System (EMS) meeting to discuss with cross sectional team members how to best resolve this issue through a base work order. The EMS meeting on June 5, 2008 resulted in no recommendations or suggestions for a possible solution. Then the Environmental Protection Committee met on June 10th 2008 at which time the Wing Commander suggested to the Environmental Manager to request funding from Guard Headquarters for wash rack modification modify to meet compliance requirements. As of July 2009 the base commander has decided to enclose an unused outdoor wash rack at building 160 and remove the existing wash rack at building 435 from service. This project is being considered for FY 2009 funding. If this project is funded in FY 2009, it could be completed by 1 JUN 2010.

-Bldg 180

On August 7, 2008 at 11:00, Fire Department personnel was rinsing a transfer hose to removed trace product after using the hose to transfer Aqueous Film Forming Foam (AFFF) from a new mobile AFFF storage unit into a fire truck. After making the proper hose connections, the operator pointed the hose end into the indoor trench drain and opened the water supply. Unbeknownst to the operator, the rinse water supply line was pressurized causing the transfer hose to jump four feet over the trench drain located inside the building sending foam product (trace AFFF mixed with rinse water) into the driveway outside. The operator then tried to rinse the foam in the driveway back uphill into the trench drain but succeeded in creating more foam and a stream of water that sent everything into the nearest stormwater drain. It is estimated that ½ - 1 cup of pure AFFF was irretrievably discharged into the stormwater system. In the future, when AFFF transfer hose requires rinsing, the Fire Department plans to use the water source supplied from a fire truck (easier to control) instead of the plumbed high pressure water lines located above the work bays.

On September 2, 2008 at 11:20 environmental personnel notified the Environmental Manager that wet pavement from the bay driveway to the nearby storm drains at B-365 and the outdoor hose connection next to the buildings driveway indicate the tenants in B-365 had performed washing operations not in-compliance with the wash or storm permit. The EM called the building supervisor and reiterated that washing of any item is to be performed at the wash rack located on the other side of building and not in the bay door driveway and that this was already a repeat non-compliance discharge.

On September 3, 2008 at 11:30 environmental personnel alerted the Environmental Manager of a continuous discharge to the storm system from a cooling system located at B-155. A hose had been set up to spray water over an outdoor cooling system to increase efficiency. The continuous runoff drained to a catch basin. The Environmental Manager



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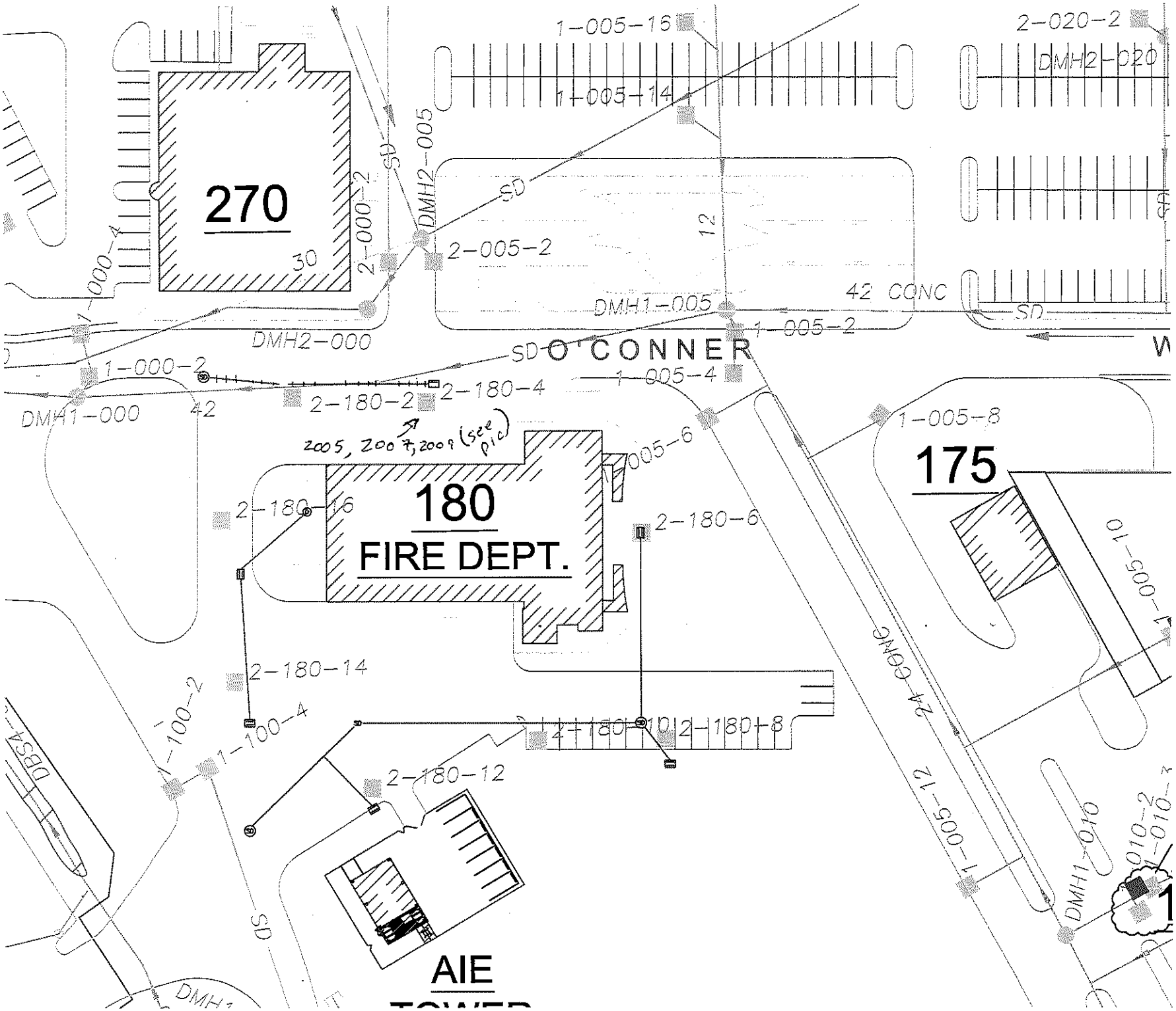

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42 CONC
24 CONC
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DMH1-005
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DMH1-000
42
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2005, 2007, 2009 (see pic)
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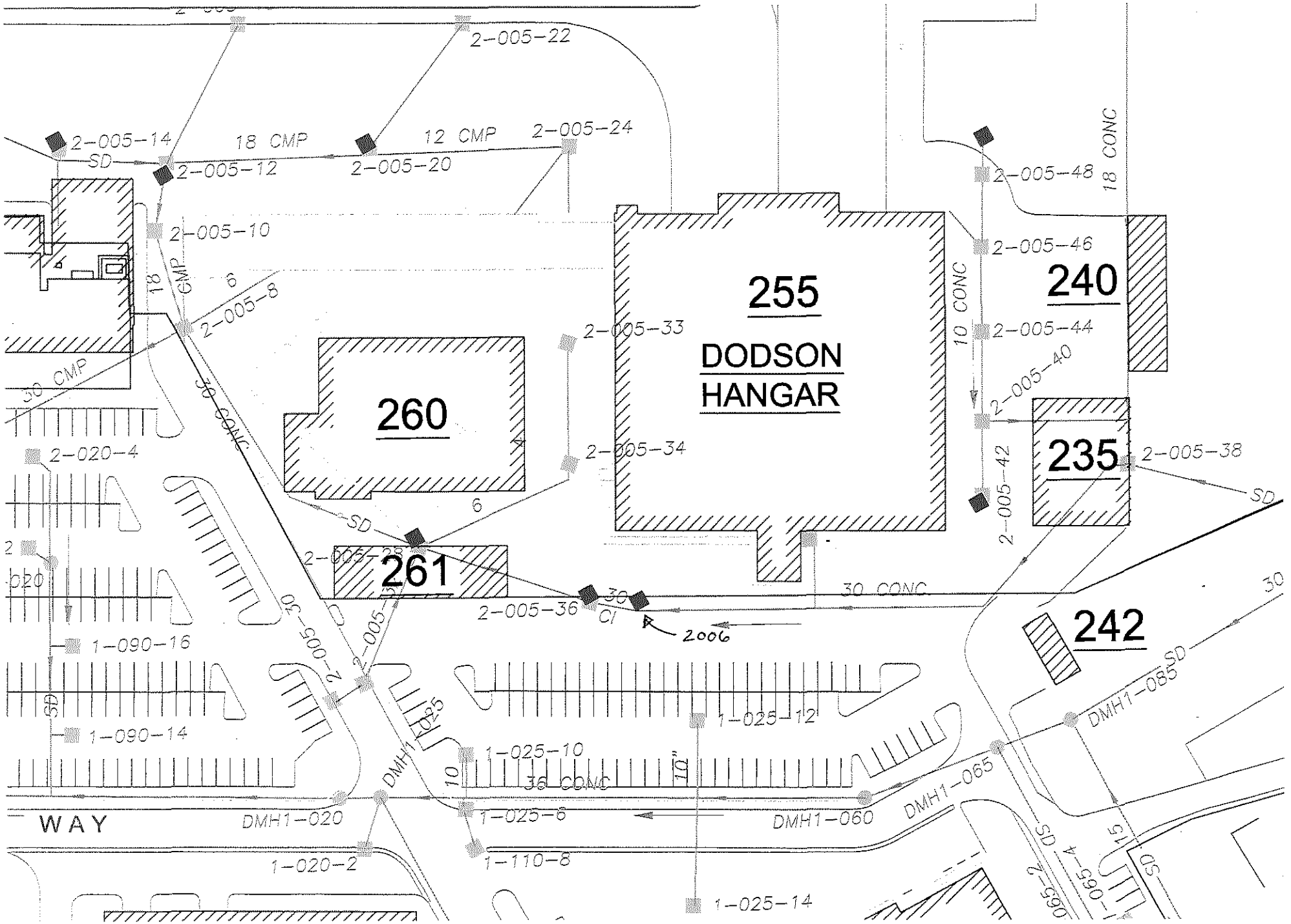

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APPENDIX C-2

EDR ONE-MILE RADIUS WATER WELLS MAP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
41	USGS40000994059	1/2 - 1 Mile SSE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	ORI500000031118	0 - 1/8 Mile ENE
A2	ORI500000031125	0 - 1/8 Mile NE
3	ORI500000031113	0 - 1/8 Mile SSE
A4	ORI500000031126	0 - 1/8 Mile NNE
A5	ORI500000031139	0 - 1/8 Mile NE
A6	ORI500000031132	0 - 1/8 Mile NE
A7	ORI500000031137	0 - 1/8 Mile NE
A8	ORI500000034871	0 - 1/8 Mile NNE
A9	ORI500000034872	0 - 1/8 Mile NE
A10	ORI500000031134	0 - 1/8 Mile NE
A11	ORI500000031116	0 - 1/8 Mile NE
A12	ORI500000031127	0 - 1/8 Mile NE
B13	ORI500000031112	1/8 - 1/4 Mile ENE
C14	ORI500000027401	1/8 - 1/4 Mile South
C15	ORI500000028040	1/8 - 1/4 Mile South
B16	ORI500000031123	1/8 - 1/4 Mile NE
B17	ORI500000034868	1/4 - 1/2 Mile NE
D18	ORI500000031121	1/4 - 1/2 Mile NE
E19	ORI500000027405	1/4 - 1/2 Mile SSW
E20	ORI500000028041	1/4 - 1/2 Mile SSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
21	ORI500000031114	1/4 - 1/2 Mile East
D22	ORI500000031124	1/4 - 1/2 Mile NE
D23	ORI500000031120	1/4 - 1/2 Mile NE
D24	ORI500000034870	1/4 - 1/2 Mile ENE
D25	ORI500000031122	1/4 - 1/2 Mile ENE
D26	ORI500000031115	1/4 - 1/2 Mile NE
E27	ORI500000027406	1/4 - 1/2 Mile SSW
E28	ORI500000028063	1/4 - 1/2 Mile SSW
F29	ORI500000028064	1/4 - 1/2 Mile South
F30	ORI500000033936	1/4 - 1/2 Mile South
31	ORI500000031117	1/4 - 1/2 Mile NE
32	ORI500000035485	1/4 - 1/2 Mile NNE
33	ORI500000012409	1/4 - 1/2 Mile NE
34	ORI500000012678	1/4 - 1/2 Mile NNE
35	ORI500000034867	1/2 - 1 Mile East
G36	ORW500000007682	1/2 - 1 Mile SE
G37	ORW500000007684	1/2 - 1 Mile SE
G38	ORW500000007683	1/2 - 1 Mile SE
H39	ORI500000050753	1/2 - 1 Mile North
H40	ORI500000050751	1/2 - 1 Mile North
H42	ORI500000050750	1/2 - 1 Mile North
H43	ORI500000050749	1/2 - 1 Mile North
H44	ORI500000050752	1/2 - 1 Mile North
I45	ORI500000042830	1/2 - 1 Mile SSE
H46	ORI500000050745	1/2 - 1 Mile NNW
H47	ORI500000050744	1/2 - 1 Mile NNW
H48	ORI500000050743	1/2 - 1 Mile NNW
H49	ORI500000050742	1/2 - 1 Mile NNW
H50	ORI500000050746	1/2 - 1 Mile NNW
H51	ORI500000050741	1/2 - 1 Mile NNW
H52	ORI500000050747	1/2 - 1 Mile NNW
H53	ORI500000050740	1/2 - 1 Mile NNW
H54	ORI500000050748	1/2 - 1 Mile NNW
H55	ORI500000050739	1/2 - 1 Mile NNW
I56	ORI500000042829	1/2 - 1 Mile SSE
J57	ORI500000029198	1/2 - 1 Mile East
J58	ORI500000029199	1/2 - 1 Mile East
K59	ORI500000034593	1/2 - 1 Mile NNW
K60	ORI500000030040	1/2 - 1 Mile NNW
J61	ORI500000029204	1/2 - 1 Mile East
K62	ORI500000030041	1/2 - 1 Mile NNW
K63	ORI500000030042	1/2 - 1 Mile NNW
K64	ORI500000030045	1/2 - 1 Mile NNW
K65	ORI500000030044	1/2 - 1 Mile NW
K66	ORI500000030043	1/2 - 1 Mile NNW
L67	ORW500000003670	1/2 - 1 Mile SSE
L68	ORI500000042831	1/2 - 1 Mile SSE
M69	ORI500000030047	1/2 - 1 Mile North
70	ORI500000030086	1/2 - 1 Mile NNE
M71	ORI500000030083	1/2 - 1 Mile NNE
72	ORI500000012179	1/2 - 1 Mile SE
M73	ORI500000034737	1/2 - 1 Mile NNE

STATE DATABASE WELL INFORMATION

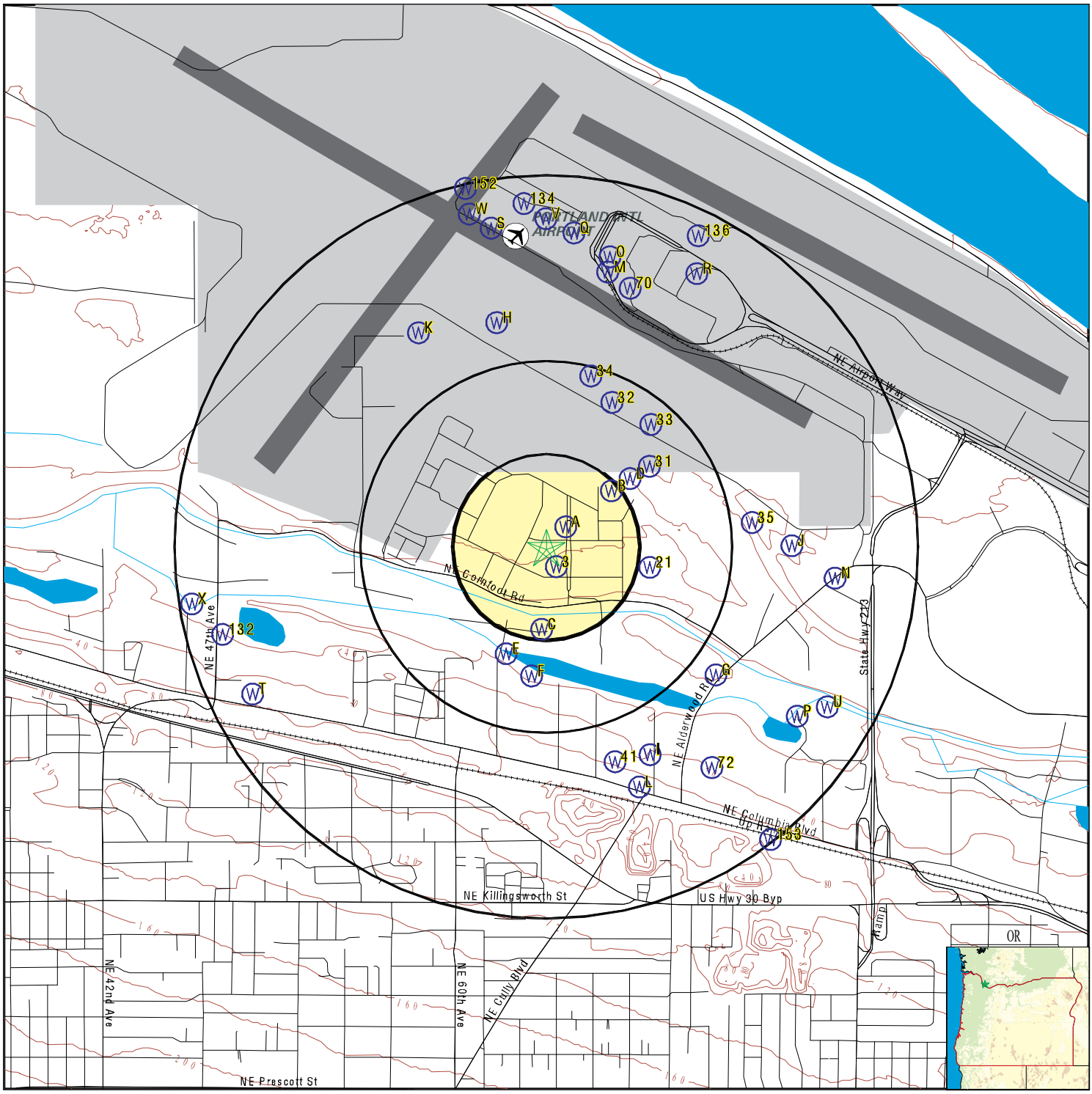
MAP ID	WELL ID	LOCATION FROM TP
M74	ORI500000030627	1/2 - 1 Mile NNE
M75	ORI500000037652	1/2 - 1 Mile NNE
M76	ORI500000035468	1/2 - 1 Mile NNE
M77	ORI500000030084	1/2 - 1 Mile NNE
M78	ORI500000037650	1/2 - 1 Mile NNE
M79	ORI500000037651	1/2 - 1 Mile NNE
M80	ORI500000037648	1/2 - 1 Mile NNE
M81	ORI500000035471	1/2 - 1 Mile NNE
M82	ORI500000037649	1/2 - 1 Mile NNE
M83	ORI500000030085	1/2 - 1 Mile NNE
M84	ORI500000035486	1/2 - 1 Mile NNE
N85	ORI500000025963	1/2 - 1 Mile East
N86	ORI500000027527	1/2 - 1 Mile East
M87	ORI500000035484	1/2 - 1 Mile North
M88	ORI500000030046	1/2 - 1 Mile North
O89	ORI500000035487	1/2 - 1 Mile North
O90	ORI500000035488	1/2 - 1 Mile NNE
O91	ORI500000035495	1/2 - 1 Mile NNE
P92	ORI500000028472	1/2 - 1 Mile SE
P93	ORI500000034125	1/2 - 1 Mile SE
P94	ORI500000028476	1/2 - 1 Mile SE
P95	ORI500000028475	1/2 - 1 Mile ESE
P96	ORI500000028474	1/2 - 1 Mile SE
P97	ORI500000028473	1/2 - 1 Mile SE
Q98	ORI500000030630	1/2 - 1 Mile North
R99	ORI500000048149	1/2 - 1 Mile NNE
R100	ORI500000048147	1/2 - 1 Mile NNE
R101	ORI500000048141	1/2 - 1 Mile NNE
R102	ORI500000048140	1/2 - 1 Mile NNE
R103	ORI500000048143	1/2 - 1 Mile NNE
R104	ORI500000048142	1/2 - 1 Mile NNE
R105	ORI500000048137	1/2 - 1 Mile NNE
R106	ORI500000048136	1/2 - 1 Mile NNE
R107	ORI500000048139	1/2 - 1 Mile NNE
R108	ORI500000048138	1/2 - 1 Mile NNE
R109	ORI500000048146	1/2 - 1 Mile NNE
R110	ORI500000048135	1/2 - 1 Mile NNE
R111	ORI500000048144	1/2 - 1 Mile NNE
R112	ORI500000048145	1/2 - 1 Mile NNE
R113	ORI500000048130	1/2 - 1 Mile NNE
R114	ORI500000048131	1/2 - 1 Mile NNE
R115	ORI500000048134	1/2 - 1 Mile NNE
R116	ORI500000048133	1/2 - 1 Mile NNE
R117	ORI500000048129	1/2 - 1 Mile NNE
R118	ORI500000048128	1/2 - 1 Mile NNE
S119	ORI500000030053	1/2 - 1 Mile North
T120	ORI500000038891	1/2 - 1 Mile WSW
U121	ORI500000029316	1/2 - 1 Mile ESE
U122	ORI500000034388	1/2 - 1 Mile ESE
V123	ORI500000034594	1/2 - 1 Mile North
U124	ORI500000025955	1/2 - 1 Mile ESE
U125	ORI500000033963	1/2 - 1 Mile ESE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
Q126	ORI500000030629	1/2 - 1 Mile North
S127	ORI500000030052	1/2 - 1 Mile North
S128	ORI500000034750	1/2 - 1 Mile North
T129	ORI500000038892	1/2 - 1 Mile WSW
V130	ORI500000030049	1/2 - 1 Mile North
T131	ORI500000039200	1/2 - 1 Mile WSW
132	ORI500000031735	1/2 - 1 Mile WSW
W133	ORI500000030048	1/2 - 1 Mile NNW
134	ORI500000030050	1/2 - 1 Mile North
W135	ORI500000034595	1/2 - 1 Mile NNW
136	ORI500000048132	1/2 - 1 Mile NNE
X137	ORI500000030334	1/2 - 1 Mile West
X138	ORI500000030335	1/2 - 1 Mile West
X139	ORI500000030344	1/2 - 1 Mile West
X140	ORI500000031703	1/2 - 1 Mile West
X141	ORI500000030341	1/2 - 1 Mile West
X142	ORI500000030332	1/2 - 1 Mile West
X143	ORI500000030346	1/2 - 1 Mile West
X144	ORI500000042243	1/2 - 1 Mile West
X145	ORI500000034685	1/2 - 1 Mile West
X146	ORI500000030333	1/2 - 1 Mile West
X147	ORI500000034684	1/2 - 1 Mile West
X148	ORI500000034924	1/2 - 1 Mile West
X149	ORI500000025974	1/2 - 1 Mile West
X150	ORI500000026069	1/2 - 1 Mile West
X151	ORI500000033564	1/2 - 1 Mile West
152	ORI500000030051	1/2 - 1 Mile NNW
153	ORI500000043167	1/2 - 1 Mile SE

PHYSICAL SETTING SOURCE MAP - 4360085.2s



- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location

SITE NAME: Portland ANGB	CLIENT: B.B. & E
ADDRESS: 6801 NE Cornfoot Road Portland OR 97218	CONTACT: Veronica Allen INQUIRY #: 4360085.2s
LAT/LONG: 45.5766 / 122.5958	DATE: July 21, 2015 4:50 pm

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APPENDIX C-3

PORTLAND WELL FIELD MAP AND NEARBY WELLS TABLE

Figure 1-2
Location of Portland Air National Guard Base within Portland, Oregon

PORTLAND AIR NATIONAL GUARD BASE
PORTLAND, OREGON

SOURCE: AFRC 2002

property (EDR 2005), and are listed in Table 3-4 (Wells 1 and 2). However, these wells are not listed as existing wells on the State of Oregon Water Resources Department, online Well Log Query (http://www.wrd.state.or.us). In addition, Roger Rein, the 142 FW Environmental Manager, provided a list of unregistered wells that are located around the base. These wells are also listed on Table 3-4. Some of these wells are used for domestic consumption (Roger Rein, personal Communication).

The western edge of Columbia South Shore Well Field is located approximately 0.75-mile from the Portland ANGB as shown in Figure 1-2. This well field is used as a supplemental water supply for the City of Portland (AFRC 2002).

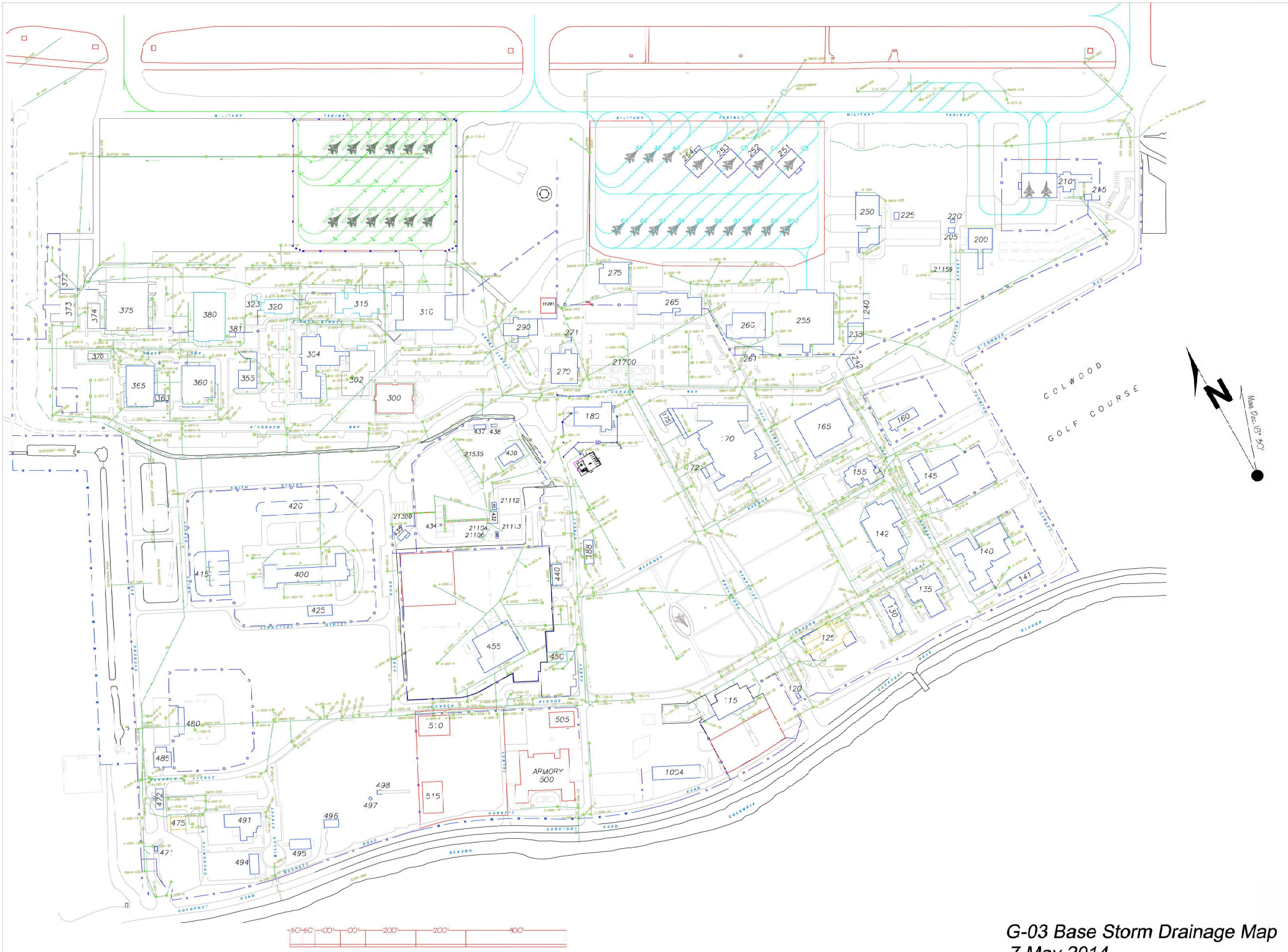
Table 3-4. Nearby Wells
Portland Air National Guard Base, Portland, Oregon

Well Number/Well Address	Distance and Direction	Potentiometric Location	Depth of Well	Water Uses
1	0.75 miles Northeast	Upgradient/ Downgradient	174 feet	unknown
2	0.75 miles South-southeast	Upgradient	46 feet	unknown
5135 NE Columbia Blvd	0.75 miles Southwest	Upgradient	Surface - draws from Whitaker Ponds/Columbia Slough	Irrigation
6849 NE Columbia Blvd	0.75 miles South	Upgradient	84 feet	Irrigation
6849 NE Columbia Blvd	0.75 miles South	Upgradient	72 feet	Domestic
6900 NE Cornfoot Rd	0.25 miles South	Upgradient	50 feet (?)	Domestic
7313 NE Columbia Blvd	0.75 miles South-southeast	Upgradient	95.5 feet	Irrigation
7313 NE Columbia Blvd	0.75 miles South-southeast	Upgradient	95.5 feet	Irrigation
7313 NE Columbia Blvd	0.75 miles South-southeast	Upgradient	95.5 feet	Irrigation
7101 NE Marine Dr	1.25 miles North-northeast	Upgradient/ Downgradient	129 feet	Domestic

Note: Information for all wells except 1, and 2 were provided by Rein, personal communication.

APPENDIX C-4

BASE STORM DRAINAGE MAP



G-03 Base Storm Drainage Map
7 May 2014

APPENDIX C-5

EDR POTENTIAL ENVIRONMENTALLY SENSITVE AREAS MAP

OVERVIEW MAP - 4360085.2S

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Portland ANGB	CLIENT: B.B. & E
ADDRESS: 6801 NE Cornfoot Road Portland OR 97218	CONTACT: Veronica Allen INQUIRY #: 4360085.2s
LAT/LONG: 45.5766 / 122.5958	DATE: July 21, 2015 4:47 pm

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Original and Former Fire Training Facilities
Investigation Results Report
Portland International Airport
Portland, Oregon
ECSI No. 3324

Prepared for:
Port of Portland

December 13, 2017
1264-03

Original and Former Fire Training Facilities Investigation Results Report Portland International Airport Portland, Oregon ECSI No. 3324

Prepared for:
Port of Portland

December 13, 2017
1264-03

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Division Manager

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8 PDX QTA Well Analytical Results – PFOA/PFOS

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C Lithologic Logs
D Laboratory Quality Assurance/Quality Control Review and Analytical Laboratory Reports
E Groundwater Sampling Logs
F PDX QTA Well Installation Log

Executive Summary

At the request of the Port of Portland (Port), Apex Companies, LLC (Apex) prepared this Original and Former Fire Training Facilities Investigation Results Report (the Report) that presents the results for collection and chemical analysis of soil, groundwater, stormwater, surface water, and sediment samples located in the vicinity of, or potentially impacted by, the Original and Former fire training facilities (Original and Former Facilities; the Site) at Portland International Airport (PDX; Figures 1 and 2). Investigation activities are being conducted with oversight from the Oregon Department of Environmental Quality (DEQ) in accordance with the Voluntary Cleanup Agreement (VCP) between the DEQ and the Port of Portland (Port) for ECSI No. 3324, dated February 8, 2017. The purpose of the investigation was to assess and delineate impacts associated with fire training activities conducted at the Original and Former Facilities. This investigation was conducted in accordance with the Reconnaissance Well Sampling Work Plan dated April 13, 2017, Investigation Work Plan dated August 29, 2017, and Investigation Work Plan Amendment dated September 19, 2017.

The Original and Former Facilities are located in the northwest portion of PDX and were actively used for aviation firefighting drills since 1963. The Current Facility, which is lined to reduce the potential for introduction of chemicals to the subsurface, is located adjacent to the Former Facility and has been in use since 1989 (Figure 2). From 1988 through 2007, site characterization, subsurface investigations, and groundwater monitoring associated with the Original and Former Facilities were performed, including soil excavation and construction of a protective cap to prevent contact with separate-phase hydrocarbons (SPH) and soil with chemical concentrations that are above human health exposure limits.

In September 2016, the DEQ requested that the Port enter the VCP to evaluate impacts resulting from use of aqueous film forming foam (AFFF) that contained per- and polyfluorinated alkyl substances (PFAS). The DEQ's request followed the U.S. Environmental Protection Agency (EPA) publishing a provisional Health Advisory (HA) for two PFAS chemicals of 70 nanograms per liter (ng/L; combined PFOA and PFOS) for drinking water. The DEQ also requested that the Port evaluate current concentrations of hydrocarbons and volatile organic compounds (VOCs) previously identified, remediated, and monitored between 1994 and 2007.

Investigation activities commenced in April 2017 with sampling of select existing monitoring wells located in the fire training facilities vicinity. Subsequent activities conducted in August through October 2017 included water level monitoring and sampling of five existing monitoring wells, installation of 25 shallow borings for collection of soil and groundwater samples to evaluate potential source areas and the extent of impacts to groundwater, collection of two deep groundwater samples below the Site, collection of three surface water samples, collection of three stormwater samples, collection of three composite sediment samples, and completion of a stormwater conveyance system video survey.

Screening levels were used to assess the risk to potential receptors from constituents detected in the various media evaluated in this investigation. In general, DEQ Risk-Based Concentrations (RBCs) for Ingestion and

Inhalation of Tapwater for Residential receptors and DEQ Level II Ecological Risk Screening Level Values (SLVs) for Surface Water (Aquatic Life) were used to evaluate total petroleum hydrocarbons (TPH), metals, VOCs, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs). There are currently no applicable Oregon PFAS criteria for groundwater, soil, surface water, or sediment. Risk-based screening levels for PFAS for human health and ecological receptors were reviewed for Oregon DEQ, EPA, other U.S. states, and countries globally. Based on these screening levels, a hierarchy was identified, and screening levels selected to evaluate PFAS concentrations detected in groundwater, soil, stormwater, and surface water during this investigation.

Results of the investigation indicate that concentrations of TPH, metals, VOCs, PCBs, and PAHs exceeding applicable SLVs are confined to the area surrounding wells MW-10A and MW-11 in the vicinity of the original fire training facility. Metals concentrations that exceed applicable SLVs appear to be background. PFAS concentrations in shallow groundwater exceeded the selected SLVs; however, based on the results of this investigation, the lateral extent of PFAS impacts to shallow groundwater has been delineated to the SLVs to the north, south, and east of the fire training facilities. The deep groundwater samples indicate that PFAS compounds are present beneath the fire training facilities in the shallow Lower Overbank Deposits (OD) at concentrations above the SLVs, but in the Columbia River Sand Aquifer (CRSA) detected concentrations are below SLVs. As an additional action to evaluate potential impacts to the groundwater aquifers in and around the Site, the Port also collected a groundwater sample from a newly installed well at the PDX Quick Turnaround (QTA) Facility, located approximately 1.3 miles east-southeast of the fire training facilities and screened from 145 to 200 feet below ground surface (bgs) in the CRSA. PFAS compounds were not detected in the sample collected from the QTA well, demonstrating that PFAS detected at the fire training facilities are not migrating toward the City of Portland Columbia South Shore Wellfield.

Results from the four soil samples analyzed for PFAS compounds indicated concentrations below selected human health risk-based screening levels for occupational direct contact. Soil samples exceeded the conservative protection of residential drinking water screening level.

Stormwater and surface water samples were collected from access points within the stormwater conveyance system, at the conveyance system outfall, at two surface locations downstream of the outfall, and from a drainage ditch located northwest of the facilities. In addition, a video survey was performed to assess the integrity of the conveyance system pipe and identified areas of seepage in portions of the pipe beneath the fire training facilities. The video survey suggests that groundwater infiltration is occurring, and PFAS were detected in stormwater and surface water (in drainage ditches). Detected concentrations in surface water offsite were below selected SLVs.

One five-point composite sediment sample was collected from surface sediment in a ditch located approximately 50 feet downstream of the stormwater conveyance system outfall. PFAS compounds were not detected above the laboratory method reporting limit in the composite sediment sample.

1.0 Introduction

This Original and Former Fire Training Facilities Investigation Results Report (the Report) presents the results for collection and chemical analysis of soil, groundwater, stormwater, surface water, and sediment samples located in the vicinity of, or potentially impacted by, the Original and Former fire training facilities (Original and Former Facilities; the Site) at Portland International Airport (PDX; Figures 1 and 2). The report also provides the results of a stormwater conveyance system camera survey to evaluate the potential for groundwater infiltration to the stormwater facilities. Work at the Site is being conducted with oversight from the Oregon Department of Environmental Quality (DEQ) in accordance with the Voluntary Cleanup Agreement (VCP) between the DEQ and the Port of Portland (Port) for ECSI No. 3324, dated February 8, 2017. This investigation was conducted in accordance with the Reconnaissance Well Sampling Work Plan, Investigation Work Plan, and Investigation Work Plan Amendment submitted to DEQ on April 13, August 29, and September 19, 2017, respectively (Apex, 2017a; Apex, 2017c; Apex 2017d).

1.1 Purpose

The purpose of the sampling described in this report was to assess and delineate the extent of shallow groundwater impacts and identify potential impacts, if any, to soil, deep groundwater, stormwater, surface water, and sediment associated with historical fire training practices at the Site.

1.2 Scope

This Report documents the activities, methods, work plan deviations, and results of sampling and assessment completed in accordance with the Reconnaissance Well Sampling Work Plan, Work Plan and Work Plan Amendment. The investigation included the following tasks:

- Reconnaissance well sampling in April 2017, included the collection of 14 shallow groundwater samples (including one duplicate sample) from 13 existing site monitoring wells and analysis for diesel- and oil-range total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), PAHs, metals, and certain per- and polyfluorinated alkyl substances (PFAS; a component of aqueous film forming foam [AFFF]). Well MW-12 was not sampled due to the presence of separate-phase hydrocarbons (SPH). PFAS samples were analyzed for the fourteen PFAS compounds included in the 2012 U.S. Environmental Protection Agency (EPA) third Unregulated Contaminant Monitoring Rule (UCMR 3). The UCMR 3 identifies the list of unregulated contaminants to be monitored by public water systems in accordance with the 1996 Safe Drinking Water Act (SDWA).
- Collection of shallow groundwater samples from 4 existing site monitoring wells, including select wells in the vicinity of the Former Facility that were not sampled during the April 2017 event. These samples were analyzed for the fourteen PFAS compounds included in the 2012 EPA UCMR 3.

- Collection of a groundwater sample from monitoring well MW-4 for Total Oxidizable Precursor (TOP) Assay analysis to identify the sum of PFAS that could degrade in the environment to perfluorooctanoic acid (PFOA). Well MW-4 was selected for additional sampling and TOP Assay analysis on the basis of having the highest combined concentration of perfluorooctane sulfonate (PFOS) and PFOA among samples collected as part of the April 2017 reconnaissance groundwater monitoring event.
- Collection of shallow groundwater and soil samples from 20 borings in the vicinity and adjacent to the Original and Former Facilities to delineate the extent of shallow groundwater impacts associated with historical fire training activities. Groundwater samples were analyzed for PFAS. Selected soil samples were analyzed for PFAS to assess if soil may be an ongoing source to groundwater.
- Collection of two shallow groundwater samples from borings (Boring I and J) installed in the field northwest of the fire training facilities where reclaimed fire training facility water was land applied. The samples were analyzed for diesel- and oil-range TPH, VOCs, total and dissolved metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), PAHs, PCBs, and PFAS.
- Collection of one shallow groundwater sample from Boring Q installed adjacent to the stormwater sewer line downstream of the Original Facility to assess if infiltration from the storm sewer is a pathway for groundwater migration. The sample was analyzed for PFAS.
- Collection of deep groundwater samples at approximately 40 and 61.5 feet below ground surface (bgs) to evaluate vertical contaminant migration. The explorations were conducted adjacent to the Former Facility and monitoring well MW-4, presumed to be the source area and exhibiting the highest combined PFOS/PFOA concentration in groundwater sampling conducted in April 2017. Samples were analyzed for PFAS.
- A stormwater conveyance system camera survey was conducted in the stormwater conveyance line that runs adjacent to the Original Facility and under the Former Facility to evaluate the condition of the lines and identify potential leaks or pathways for groundwater discharge. Passing beneath and adjacent to the facilities, the conveyance line receives stormwater runoff from the vicinity of the Original and Former Facilities and appears to control shallow groundwater.
- Collection of stormwater from stormwater sewer line access points upstream and downstream of the fire training facilities (MH-1 [STSMH125] and MH-2 [STSCB3228]). Samples were analyzed for PFAS.
- Collection of surface water from the drainage ditch northeast of the Original Facility to assess shallow groundwater infiltration to drainage ditches. The sample was analyzed for PFAS.
- Collection of stormwater and sediment from the outfall (Outfall 1N) that discharges stormwater runoff from the vicinity of the Original and Former Facilities. The samples were analyzed for PFAS.

- Collection of surface water samples downstream of Outfall 1N at the western extent of Port property (SW-2) and in a Multnomah County Drainage District (MCDD) drainage ditch prior to being pumped into the Columbia Slough (SW-3).
- Record groundwater elevation data in April and September 2017 from the existing monitoring well network to support gradient mapping and evaluation for groundwater migration within and around local stormwater conveyances.
- Collection of a groundwater sample from the PDX QTA well located approximately 520 feet southeast of the air traffic control tower in the PDX QTA Facility and approximately 1.3 miles east-southeast of the Original and Former Facilities. The well is screened from 145 to 200 feet below ground surface in the Columbia River Sand Aquifer (CRSA).

The results of these activities are discussed in further detail within this Report.

2.0 Background

This section presents a brief description of the Site, its history, and available physical and chemical data. Information included in this section was obtained from previously completed site investigations and related work conducted within the vicinity of the Site.

2.1 Site Location and Description

The current, original, and former fire training facilities (herein the Current Facility, the Original Facility and the Former Facility, and collectively "the fire training facilities"), are located in the northwest portion of PDX (shown on Figures 1 and 2). Portions of the Site have been actively used for aviation firefighting drills since 1963. According to Port records, the Original Facility was used from approximately 1963 until the early- to mid-1970s, after which the Former Facility was used for training exercises until 1989. The Current Facility has been used since approximately 1989.

Some live fire exercises used water and retardant firefighting foams (i.e., AFFF) as part of training, in equipment and to extinguish specific types of training fires. The Current Facility is lined to reduce the potential for introduction of chemicals to the subsurface; however, the Original and Former Facilities were not lined.

PDX and its fire department are regulated under Federal Aviation Administration (FAA) and National Fire Protection Association (NFPA) regulations and guidance which specify the AFFF type, testing, use, and training that is required for use of AFFF on commercial aviation facilities. The PDX fire department has followed these regulations and standards of practice which has resulted in the use of PFAS-containing AFFF since the late 1960s.

2.2 Site History

From 1988 through 2017, site characterization, cleanup actions, and groundwater monitoring have been conducted at the Site, including soil excavation and construction of a protective cap to prevent contact with separate-phase hydrocarbons (SPH) and soil with chemical concentrations that are above human health exposure limits. Previous investigations have indicated that a variety of chemical substances (used oil, gasoline, diesel fuel, JP-4 fuel, acetone, and solvents) have been applied to the ground surface and mock aircraft, then ignited for training purposes. Soil and groundwater at the fire training facilities contain petroleum hydrocarbons and associated constituents (e.g., polycyclic aromatic hydrocarbons [PAHs]) from fuels used for training fires, and components of AFFF are present in groundwater. Separate-phase hydrocarbons have historically been present in one monitoring well (MW-12). Groundwater monitoring and/or limited, passive residual SPH removal was conducted at the Site through 2007.

The following provides a summary of the investigations completed at the fire training facilities.

- 1988 Site Characterization – The Former Facility was first investigated in 1988 by Roger N. Smith and Associates (RNSA) to assess if contamination of this area would interfere with construction of the Current Facility. RNSA excavated 20 test pits to a maximum depth of 10.5 feet below ground surface (bgs) and collected surface and subsurface soil samples. Petroleum hydrocarbons and related VOCs and semi-volatile organic compounds (SVOCs) were detected in soil. Petroleum hydrocarbons were detected at concentrations up to 175,000 milligrams per kilogram (mg/kg). Metals in soil were generally consistent with background. VOCs were detected in groundwater.
- 1994 Century West Characterization – Century West conducted site characterization to evaluate the nature and extent of impacts to soil and groundwater from fuels used during fire training activities. Century West excavated 10 test pits, completed 33 soil borings, and installed 9 groundwater monitoring wells in the vicinity of both the original and former fire training facilities. Total petroleum hydrocarbons were detected in soil at up to 32,000 mg/kg and 14,000 mg/kg at the original and former fire training facilities, respectively. VOCs and PAHs were also detected in soil. Metals in soil were consistent with background. VOCs and PAHs were detected in groundwater.
- 1996 Geraghty & Miller Investigation – Geraghty & Miller completed 12 borings and five monitoring wells and collected 14 surface soil samples at the original and former fire training facilities. TPH was detected in soil at up to 24,000 mg/kg and 14,000 mg/kg at the original and former fire training facilities, respectively. VOCs and PAHs were also detected in soil. Metals in soil were consistent with background. Polychlorinated biphenyls were detected in two samples. Groundwater monitoring showed that the gradient was toward a nearby storm sewer. VOCs, PAHs, and bis(2-ethylhexyl)phthalate were detected in groundwater. Lead in groundwater was likely consistent with background.
- 1996 Remedial Action – Beginning in 1996, the Port capped the Original and Former Facilities and implemented long-term groundwater monitoring as a remedial alternative. The protective cap

prevents direct contact with soil containing petroleum hydrocarbons and related constituents. The cap generally consists of a demarcation layer and a gravel base. Portions of the cap expected to receive greater vehicle traffic include a cement-treated gravel base or asphalt-concrete. The demarcation layer was constructed with a 5-mil, white, low-density polyethylene (LDPE) material overlain by a medium-weight, woven, polypropylene geotextile. The LDPE material served as a visible marker separating the aggregate base from underlying soils containing residual contaminants.

- 2001 Hart Crowser Groundwater Sampling Adjacent to Storm Sewer Line – In May 2001, Hart Crowser completed a test pit exploration adjacent to the storm sewer pipeline that runs west of the Original Facility area and runs west of the Former Facility area. Groundwater was encountered at a depth of about 7 feet bgs. After the groundwater that initially entered the excavation was purged, a groundwater sample was collected from the sand around the sewer pipeline. The groundwater sample was analyzed for PAHs and for benzene, toluene, ethylbenzene, and xylenes (BTEX), and neither PAHs nor BTEX compounds were detected in the test pit groundwater sample (Hart Crowser, 2001).
- Groundwater Monitoring: 1994 to 2007 – Groundwater sampling from monitoring wells was conducted quarterly from 1994 to 1996, semi-annually in 1997, and annually from 1998 through 2007. The monitoring consistently showed a groundwater gradient toward the stormwater conveyance system. Early sampling identified VOCs and PAHs above human health and ecological screening levels. By 2007, only benzene in one well (MW-12) was above screening levels.
- Separate Phase Hydrocarbon Removal 1996 to 2007 – Beginning in December 1996, removal of SPH using a sorbent sock was conducted in well MW-12. The thickness of SPH was measured during each groundwater monitoring event and the sorbent sock removed and/or replaced as appropriate. (Hart Crowser, 2002). The sorbent socks installed from 1998 through 2007 had no indications of hydrocarbon (i.e., no visual observation of staining) absorption (Ash Creek Associates, 2007) and ceased in 2007.

2.3 PFAS Regulatory Status

Since the 1940's PFAS have been used in many industrial and commercial applications. The most extensively produced PFAS chemicals in the United States were PFOA and PFOS. By 2002, all production of PFOS had been voluntarily discontinued by manufacturers in the United States. In 2015, as part of the PFOA Stewardship Program, eight major U.S. chemical manufacturers agreed to eliminate production of PFOA. The U.S. EPA amended the Significant New Use Rule to include PFAS under the Toxic Substances Control Act and in January 2015 required manufacturers and importers to notify the U.S. EPA at least 90 days prior to starting or resuming use of PFOA and related compounds. PFAS are now regulated and phase-outs of PFOA/PFOS and precursor compounds are established in the USA, EU, Canada, and Australia.

In 2016, the U.S. EPA established a provisional Health Advisory (HA) level of 70 nanograms per liter (ng/L) for combined concentrations of PFOS and PFOA in drinking water. This provision was updated in 2016 to

include chronic exposure of PFOS and PFOA combined. Health advisories provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water. EPA's health advisories are non-enforceable and non-regulatory and provide technical information to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. Additionally, in 2012 PFAS compounds, including PFOS, PFOA, perfluorononaoic acid (PFNA), perfluorohexane sulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), and perfluorobutane sulfonic acid (PFBS),, were added to the Unregulated Contaminant Monitoring Rule (UCMR) to be monitored in public water supply systems. EPA uses the UCMR to collect data for contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act (SDWA).

2.4 Site Geology and Hydrogeology

Site Geology. The near surface geology in the site vicinity is characterized by Pleistocene to recent alluvial deposits, consisting of unconsolidated, interbedded silts, sands, and gravels, overlying poorly to moderately consolidated Troutdale Formation conglomerates, with thin interbeds of claystone, siltstone, and sandstone. From the ground surface, down, the geologic units in the vicinity of the Site are Fill, Overbank Deposits (OD); Columbia River Sand Aquifer (CRSA); Troutdale Gravel Aquifer (TGA); Confining Unit 1 (CU1), Troutdale Sand Aquifer (TSA), Confining Unit 2 (CU2), and Sand and Gravel Aquifer (SGA).

The geology beneath the Site consists predominantly of fill, including silt or fine- to medium-grained sand (dredge sand), to a depth of 4 to 5 feet bgs overlying the OD consisting of layers of silty clay, silt, silty sand, and sandy silt. Within the native silty OD, an approximately 5-foot-thick layer of fine sand is present beneath the site at depths ranging from 10 to 17 feet bgs. Based on boring log MTD-1, installed approximately 2,000 feet north of the fire training facilities, and deep Boring M installed during this investigation, the CRSA has been observed at approximately 56 feet bgs, the TGA at approximately 280 feet bgs, CU1 at approximately 350 feet bgs, the TSA at approximately 420 feet bgs, and the SGA at approximately 570 feet bgs (Hart Crowser, 2004).

Site Hydrogeology. Aquifers in the OD (unconsolidated alluvial deposits) are generally unconfined and localized due to the heterogeneity of the deposits with the water typically present at 10 to 20 feet bgs. Water quality and hydraulic conductivity are highly variable. Shallow groundwater flow beneath the airport is controlled by surface water features (e.g., ditches, stormwater lines, Columbia River, and Columbia Slough) and groundwater elevations observed beneath the fire training facilities suggest a hydraulic gradient toward the storm sewer. Groundwater recharge in the OD occurs from rainfall infiltration from unpaved areas, irrigation, or downward migration of perched water from the Fill. Groundwater from the OD is typically expected to discharge to the Columbia River either directly through the OD, and/or indirectly through the underlying CRSA. In general, CRSA groundwater discharges to the Columbia River (except during high Columbia River stage). Regionally, the CRSA is also used as a source of drinking water.

As detailed in the Beneficial Land and Water Use Survey Update prepared by Apex in 2012, groundwater underlying the PDX property is not designated for a drinking water use. The predominant use of groundwater in the immediate vicinity of PDX is for irrigating landscaped areas and golf courses. No golf courses are present on Port property; however, several are located immediately adjacent to PDX. Otherwise, domestic use is limited to two residential areas southwest of the project site, and two marinas north of the airport. According to an online review of the Oregon Water Resources Department Well Log Query Report conducted on December 6, 2017, the closest domestic water well is located 0.8 mile northeast and cross-gradient to the Original and Former Facilities. Groundwater is also used for industrial purposes southwest of PDX and along Columbia Boulevard to the south. Water wells obtain groundwater from the CRSA, TGA, or deeper aquifers (Apex, 2012). No water wells were identified that utilize groundwater from the Fill or OD.

The City of Portland (City) also maintains a well field to the southeast of the PDX property, the City Columbia South Shore Well Field (CSSW). The City uses the CSSW both as an emergency backup supply and occasionally to seasonally augment the primary drinking water supply. The CSSW has municipal wells installed in the CRSA, TSA, and SGA (City of Portland, 2014). The CSSW has been used in its emergency capacity 12 times and for seasonal augmentation or maintenance 24 times since 1985 (City of Portland, 2017). The closest City water supply well is completed within the TSA and located over 3 miles southeast of the fire training facilities.

Based on monitoring conducted since 1994 at the Site, groundwater levels are generally at a depth of 10 feet bgs and fluctuate approximately 2 to 3 feet seasonally with lower water levels in the summer and fall. The hydraulic gradient is typically to the south and is influenced by the stormwater conveyance system (Ash Creek, 2007). Groundwater elevation data are discussed in greater detail in Section 4.3.3.

2.5 Screening Levels

Currently, there are no applicable DEQ screening levels for PFAS in groundwater, stormwater, surface water, sediment, or soil. To assess the potential risk posed by constituents detected in the various media evaluated in this investigation, the potential Site receptors and exposure pathways were identified and screening levels developed by the EPA, other U.S. states, and countries globally were surveyed and then selected based on receptor and pathway. This section presents the receptors and exposure pathways identified for the Site followed by the screening levels selected.

Potential receptors at the Site generally consist of human and ecological receptors. The Site is located entirely within PDX in an area that is not used on a regular basis. Additionally, for protection of aircraft, wildlife is actively discouraged from using the area. Groundwater is generally not used at the Site. Potential uses on nearby properties include irrigation and discharge to surface water. Beyond PDX, groundwater is used for drinking water, including domestic wells and the City of Portland Wellfield to the east. Stormwater from the Site, including stormwater that may include infiltrated groundwater, discharges to surface ditches on PDX and

adjacent industrial land. From the ditches, water is pumped to the Columbia Slough. Based on this summary of land and water use, the following identifies the receptors and exposure pathways.

- Human Health
    - Direct contact with soil – Occupational
    - Drinking water – Residential (as a conservative measure)
    - Direct contact with surface water/sediment - Construction Worker
    - Soil leaching to groundwater (protection of residential drinking water; as a conservative measure)
- Ecological
    - Direct contact with surface water
    - Direct contact with sediment

Screening levels were selected for these potential receptors and pathways to assess the potential risk posed by constituents detected in the various media evaluated in this investigation. DEQ Risk-Based Concentrations (RBCs) for Ingestion and Inhalation of Tapwater for Residential receptors and DEQ Level II Ecological Risk SLVs for Surface Water (Aquatic Life) were used as conservative screening levels for TPH, VOCs, PCBs and metals (Table 4).

Human health and ecological screening criteria or health advisories have been issued for PFOS, PFOA, and other PFAS compounds by EPA, several U.S. states, and in territories and countries globally. In general, screening levels for this assessment were selected using the receptors and pathways identified above using the following hierarchy:

1. Applicable or relevant DEQ risk-based criteria or guidance;
2. Applicable or relevant EPA risk-based criteria or guidance or advisory;
3. Relevant criteria or guidance from other states; or
4. Relevant criteria or guidance from other countries.

Following this selection process, if screening levels were identified for multiple states, the conservative screening level value for the receptor and pathway was selected. Although groundwater screening levels were identified for several states, the Port voluntarily used the conservative EPA HA to screen groundwater analytical data for this investigation. Screening levels selected for the potential Site receptors and pathways are as follows:

- Human Health

- Direct contact with soil (Occupational) – EPA RSL for PFOS, PFOA, and PFBS and Texas protective concentration levels for commercial land (30 acres) for remaining 11 PFAS compounds.
- Drinking water (Residential) – EPA HA for PFOS and PFOA and Texas residential drinking water for remaining 12 PFAS compounds.
- Direct contact with surface water/sediment (Construction Worker) – Maine screening level for PFOS and PFOA. SLVs for remaining PFAS compounds were not identified during the survey.
- Soil leaching to groundwater (protection of residential drinking water) - EPA RSL for PFOS, PFOA, and PFBS and Texas protective concentration levels for residential land (30 acres) for remaining 11 PFAS compounds.

- Ecological
  - Direct contact with surface water – Michigan water quality values aquatic species (final aquatic value) for PFOS and PFOA. SLVs for remaining PFAS compounds were not identified during the survey.
  - Direct contact with sediment – PFAS compounds were not detected in sediment samples therefore no SLV was selected.

Appendix A includes tables presenting results of the survey of drinking water, groundwater, surface water, soil, and sediment screening levels. These tables consist of screening levels available as of June 2017. Based on the receptors/pathways identified above and the values presented in Appendix A, selected screening levels for PFAS are applied in Tables 2 through 8.

3.0 Field Activities

3.1 Investigation Preparatory Activities

Property Access. Apex provided notification to Port personnel and Port Operations (OPS) to coordinate access to the Site at PDX. The notifications were submitted to OPS a minimum of one week in advance. All unbadged Apex employees and subcontractors were escorted by badged Apex employees.

Flagging/Barricading: Portions of the work were performed south of Taxiway B and north of the main runway during planned taxiway maintenance closure. Work areas were delineated with cones and vehicles with amber flashing beacons. During field investigation activities, airside Port Airport Operations notifications were completed in accordance with Port requirements.

Underground Utility Location. Prior to conducting ground disturbance activities, Apex mobilized to the Site to mark the proposed sampling locations with marking paint and notified the Oregon Utility Notification Center in accordance with requirements specified in Oregon Administrative Rules (OAR) Chapter 952. Because underground utility operators do not mark on private property and because the drilling activities were performed inside the secure area of PDX, Port personnel conducted an underground utility locate to mark underground utilities located within the proximity of each proposed sampling location prior to performing the subsurface work.

Site Health and Safety Plan. A Site-specific health and safety plan (HASP) was prepared for the activities. The HASP was prepared in general accordance with the Occupational Safety and Health Act (OSHA) and the OAR. A copy of the HASP was maintained on-Site during the field activities.

Prior to performing on-Site work, Apex prepared a Job Safety Analysis (JSA) and HASP guiding Site- and project-specific activities, risks, and safety protocols. All field staff and subcontractor personnel supporting the project reviewed and agreed to abide by the HASP. Safety topics were refreshed daily with the field crew using a daily tailgate safety meeting, conducted by Apex's Site Supervisor or Site Safety Officer.

3.2 Methods and Procedures

3.2.1 PFAS-Specific Sampling Procedures

To reduce the chance of inadvertent PFAS contamination of samples, Apex sampling personnel and subcontractors avoided using PFAS-containing items during the sampling process. Items commonly used in sampling processes that may contain PFAS include polytetrafluoroethylene (PTFE, also known as Teflon), low-density polyethylene (LDPE), and polypropylene. Other common items that may contain PFAS include aluminum foil, post-it notes, waterproof field books, markers, chemical ice packs (e.g., blue ice), certain decontamination soaps, and certain product packaging (e.g., such as that found on pre-wrapped foods and snacks). Similarly, many clothing items contain PFAS, such as those coated with Teflon or incorporating a Gore-Tex membrane. Clothing items worn by Apex field staff had been washed at least six times and known PFAS-containing products were avoided during sample collection. In addition, field personnel avoided the use of PFAS-containing products such as cosmetics, moisturizers, insect repellant, sunscreen, and hand cream. Nitrile gloves were used during all sample collection activities, including equipment set-up, sample collection, and sealing of containers. PFAS contamination prevention protocols were reviewed with subcontractors and personnel daily during the field activities.

3.2.2 Stormwater Conveyance Line Camera Survey

On September 29, 2017, Apex subcontractor Pacific INT-R-TEK conducted a video survey of approximately 1,500 feet of the 36-inch diameter stormwater conveyance system pipe located beneath the Site from manhole STS CB 3228 to STS MH 5094. The survey was conducted to assess the integrity of the stormwater line that

flows from northeast to southwest beneath the Original and Former Facilities (Figure 3). The video camera unit, manufactured by Aries Industries, Inc., was a two-piece system consisting of a motorized wheel transporter and the camera. Approximately 680 feet of the surveyed stormwater system is upstream of the Former Facility; approximately 500 feet is directly underneath the Former Facility; approximately 220 feet is downstream of the Former Facility; and approximately 100 feet is downstream of the Original and Former Facilities. Figure 3 presents the extent of the surveyed conveyance system. The total length of the video survey was completed in five segments in order to span the distance between catch basin or manhole access points, to allow transfer of the camera over the catch basin sumps at the intersection of each segment, and to document any identification tags at each launch location. Figure 3 shows the schematic of the stormwater system and the segments of the stormwater system that were video surveyed.

3.2.3 Shallow Soil Boring Installations

Under the supervision of Apex, Steadfast Services NW, LLC (Steadfast) of Vancouver, Washington installed twenty-three soil borings (Boring A through L, and Boring N through X) using a Geoprobe push-probe to an approximate depth of 15 feet bgs or to first encountered groundwater from August 28 through 29 and September 27 through 29, 2017 (Figure 6). Soil cores were extracted, and soil lithology and conditions logged in general accordance with ASTM 2487/2488. Descriptions included visual indications of impacts. Soil cores were field screened at approximately 2-foot intervals for VOCs using a photoionization detector (PID) and for SPH using sheen tests.

A field log of lithology and soil conditions was maintained for the borings and the location recorded using a handheld global positioning system (GPS) unit. Lithologic logs are included as Appendix C. Drilling equipment (i.e., direct push rods, macro-core, etc.) were decontaminated before and after each boring.

A minimum of two soil samples was collected from each location for possible chemical analysis. Samples were collected at 0.5- to 1-foot bgs and at the soil-water interface (depth determined based on groundwater level at the time of drilling estimated from visual indicators of groundwater). Additional soil samples were collected at Boring O and Boring V locations based on field screening indications.

One grab groundwater sample was collected from each exploration. Field parameters, including pH, temperature, and electrical conductivity were recorded during groundwater sampling. Samples were transferred into laboratory-supplied containers, stored at 4 degrees Celsius (°C), and submitted to state-certified laboratories. Samples analyzed for PFAS by EPA Method 537 (modified) and TOP Assay were submitted to Vista Analytical (Vista) in El Dorado Hills, California. Groundwater samples collected from Borings A, D, I, and J were submitted to and analyzed by Apex Laboratories (Apex Lab) of Tigard, Oregon for diesel- and oil-range TPH by Method NWTPH-Dx with silica gel cleanup and VOCs by EPA Method 8260. Field observations and measurements made during groundwater monitoring were recorded in field notes. Groundwater monitoring field sheets are included as Appendix E.

3.2.4 Deep Soil Boring Installations

Under the supervision of Apex, Cascade Drilling (Cascade) of Clackamas, Oregon installed two soil borings (Boring M Deep and Boring M Shallow) to collect grab groundwater samples at depth. The borings were advanced using a sonic drill rig on October 2 and 3, 2017 (Figure 6). The purpose of the deep groundwater collection was to evaluate the potential for vertical contaminant migration resulting from impacts related to the Former Facility activities. The Boring M exploration locations were adjacent to and west of the Former Facility, and in the vicinity of monitoring well MW-4, in the area that exhibits the highest combined PFOS/PFOA concentration in groundwater sampling conducted in April 2017. Groundwater sample collection depths included one sample from the lower OD unit screened from 35 to 40 feet bgs, just above the CRSA regional aquifer, and one sample from within the CRSA unit screened from 56.5 to 61.5 feet bgs. Grab groundwater samples collected from these explorations were analyzed for PFAS.

Sonic drilling uses high-frequency, resonant energy to advance a core barrel or casing into subsurface formations. The method uses a dual-cased system, with inner core barrel advancement, followed by outer casing advancement to sleeve over the inner casing to create hole stability. For each interval, the 4-inch-diameter inner core barrel was advanced at 10-foot intervals into the subsurface, followed by the 6-inch-diameter outer casing. At each interval, the core barrel was then removed from the borehole and the soil was bagged for logging and sampling. By design, this process effectively isolates the inside of the drill core from the surrounding media, thus preventing cross-contamination. This process continued until the total depth was reached.

During installation of the deep boring, heaving sands were encountered below 70-feet bgs. The sands were heaving such that, with the outer 6-inch casing in place at 80-feet bgs, heaving sands were entering the casing and rising to a depth of 65-feet. An attempt to install a temporary well was made with the heaving sands at 65-feet bgs. When the outer casing was raised to this depth, the heaving sands rose to 55-feet bgs. Cascade attempted several clean-out runs to clear the heaving sands, but significant back-pressure and additional heaving sands were observed. To clear the heaving sands from the casing, Cascade injected approximately 45 gallons of potable water into the annular space between the casing and the tooling.

After injecting water and conducting the additional clean-out runs, the sand continued heaving and a maximum boring depth of 61.5 feet bgs was reached. A temporary well was installed at a depth of 61.5 feet bgs and screened from 56.5 to 61.5 feet bgs. Approximately forty-five gallons of water was purged from the temporary well and water parameter stabilization was confirmed prior to collecting a groundwater sample. Prior to the collection of groundwater samples, pH, conductivity, temperature, dissolved oxygen (DO) and oxidation-reduction potential (ORP) were documented.

Soil sampling for lithologic descriptions was conducted for the full length of the deep boring. Soil cores were field screened at approximately 2-foot intervals for VOCs and SPH using a PID, and for SPH using sheen

tests conducted on soil at approximately 2-foot intervals. Lithologic descriptions were completed in general accordance with ASTM 2487/2488. Lithologic logs are included in Appendix C.

Based on the heaving sands associated with the installation of the temporary well at Boring M Deep into the CRSA, a second boring (Boring M Shallow) was installed adjacent to the Boring M Deep location. For this location, a temporary well was installed in the lower OD at a depth of 40 feet bgs and screened from 35 to 40 feet bgs. Documentation of field parameters (pH, conductivity, temperature, DO, and ORP) was conducted prior to groundwater sample collection.

Grab-groundwater sampling procedures, sample handling, and quality assurance/quality control (QA/QC) procedures were completed in accordance with the Work Plan.

3.2.5 Groundwater Monitoring

Groundwater levels were measured on April 20 and September 26, 2017 from thirteen monitoring wells at the Site (Figures 2 and 5). The surface at well MW-5 was submerged by ponded water so the well was gauged on April 21, 2017, after the ponded water receded. Well MW-3 could not be opened due to monument damage and therefore was not measured. The well caps were removed and water levels allowed to equilibrate before the measurements were taken. The depth to groundwater, free product, and/or sheen were measured in each well to the nearest 0.01 foot using an electronic oil-water interface probe.

Groundwater samples were collected from six existing monitoring wells (MW-1, MW-3, MW-4, MW-7, MW-9, and MW-10A) in April 2017 and from four existing monitoring wells (MW-6, MW-8, MW-13, and MW-14) on September 26, 2017 (Figure 2). A duplicate sample was collected from monitoring well MW-6. Previously sampled during the April 2017 reconnaissance event and exhibiting the highest combined concentrations of PFOS and PFOA among the wells sampled, an additional groundwater sample was collected from well MW-4 on September 26, 2017 and analyzed for PFAS TOP Assay to identify the sum of PFAS that could be converted to perfluoroalkyl acids and to assess the potential PFAS environmental risk.

For samples collected from the monitoring wells, groundwater field parameters (pH, ORP, DO, specific conductivity, and temperature) were measured with a water quality meter using a flow cell connected to the discharge tubing of the sample pump. The turbidity of the water was monitored visually with color and clarity of the water recorded on the sampling data sheet. Purging was considered complete when the water quality parameters stabilized to within 10 percent and the water was visually clear for three consecutive three-minute intervals. Groundwater monitoring field sheets are presented in Appendix E.

3.2.6 Stormwater and Surface Water Sampling

Stormwater Conveyance System Sampling. On August 29, 2017, grab stormwater samples were collected from two access points along a stormwater conveyance line to assess the potential for PFAS-impacted

shallow groundwater infiltration into the conveyance system. The sampling locations are indicated on Figure 7. One access point (sample location MH-2 [STSCB3228]) was located approximately 700 feet upgradient of the Former Facility and a second access point (sample location MH-1 [[STSMH125]) was located approximately 350 feet downgradient of the Former Facility. Due to the confined space entry necessary for sample collection, manhole access was completed by subcontractor Terra Hydr with Apex oversight. Lab-specific containers were used for direct grab stormwater sample collection.

Outfall Sample Collection. On August 29, 2017 a grab stormwater sample was collected from the catch basin located directly upgradient of outfall OF1N (Figure 7). Due to the confined space entry necessary for sample collection at the OF1N access point, manhole access was completed by subcontractor Terra Hydr with Apex oversight. Lab-specific containers were used for direct grab stormwater sample collection.

Surface Water Sample Collection. On August 29 and September 28, 2017, three surface water grab samples were collected to assess PFAS concentrations in the vicinity of and downgradient of the Original and Former Facilities. Surface water was collected from the drainage ditch located approximately 180 feet north of the Original Facility at the culvert inlet to the stormwater conveyance system (sample location SW-1). The other two surface water grab samples were collected downstream of the Current and Former Facilities. Surface water sample SW-2 was collected from the drainage ditch at a location immediately east of the drainage ditch at its intersection with Sunderland Ave, approximately 1.1 miles southwest of the Site. Surface water sample SW-3 was collected from the drainage ditch near MCDD Pump Station #2, approximately 1.7 miles southwest of the Site. Each of the surface water sample locations are presented on Figure 7.

3.2.7 Sediment Sampling

On September 28, 2017, Apex mobilized to the outfall located southeast of the Deicing Treatment facility, approximately 4,400 feet west of the Site and downstream of surface water sample SW-1 and stormwater samples MH-1, MH-2, and OF1N-NW, to collect composite sediment samples at OF1N-SED (Figure 7). The composite samples were collected from an approximately 30-foot long section of the ditch, with the upstream end of the collection area located approximately 50 feet downstream of the outfall. The composite samples consisted of depth-discrete samples collected from 5 approximately equidistant sample locations within the sampling area. Depth-discrete samples included those collected from the 0- to 12-inch, 12- to 24-inch, and 0- to 24-inch depth intervals. These depths are based on the anticipated thickness of sediment over native soil. Each composite sample was homogenized before placing into the lab specific containers.

3.2.8 PDX Rental Car QTA Well

The PDX rental car Quick Turnaround Facility (New QTA) well is located approximately 520 feet southeast of the air traffic control tower in the PDX QTA Facility and approximately 1.3 miles east-southeast of the Original and Former Facilities. The New QTA is under construction and is scheduled to be completed in 2018. The new QTA well was started on May 24, 2017 and completed on September 20, 2017. The well is screened

from 145 to 200 feet bgs in the CRSA. The well will be used as a non-potable water source. Currently, there are no plans to supplement the municipal drinking water system from the new QTA well. A well construction log is included as Appendix F. The well location is shown on Figure 8.

The new QTA well was sampled by Apex on August 24, 2017 following purging and water quality sampling conducted by the Port's water well consultant. A grab groundwater sample was collected directly from the aboveground sampling valve associated with the well in general accordance with groundwater sampling procedures specified in the Work Plan.

3.2.9 Analytical Program

Chemical analyses were performed on the collected groundwater, stormwater, surface water, sediment, and select soil samples. Remaining soil samples were retained for potential future laboratory analysis. Samples were analyzed on a standard turnaround time (usually 14 to 21 business days depending on analyses). Analytical laboratory reports and a data quality review are provided in Appendix D.

Groundwater Samples. All groundwater samples were analyzed for PFAS. PFAS analysis by EPA Method 537 (modified) was conducted by Vista Analytical (Vista) of El Dorado Hills, California. Reported PFASs included fourteen compounds: PFBS, PFHpA, Perfluorohexane sulfonic acid (PFHxS), Perfluorohexanoic acid (PFHxA), PFOS, PFOA, Perfluorotetradecanoic acid (PFTeDA), PFNA, Perfluorodecanoic acid (PFDA), Perfluoroundecanoic acid (PFUdA), Perfluorododecanoic acid (PFDoA), Perfluorotridecanoic acid (PFTrDA), N-Ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) and N-Methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA). One groundwater sample collected from well MW-4 was analyzed for PFAS TOP Assay by TestAmerica Laboratories under subcontract to Vista. The groundwater samples collected from Borings A, D, I, and J were analyzed by Apex Laboratories (Apex Labs) of Tigard, Oregon for diesel- and oil-range TPH by Method NWTPH-Dx with silica gel cleanup and VOCs by EPA Method 8260. Groundwater samples from Borings I and J were analyzed by Apex Labs for total and dissolved metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by EPA 6000/7000-series methods, PAHs by EPA Method 8270D (SIM), and PCBs by EPA Method 8082A.

Soil Samples. Soil samples from twenty borings were retained for potential future analysis, with the exception of the soil samples collected from Borings F, G, and M. Surface soil samples collected at a depth of 0.5- to 1-foot bgs from Borings F, G, and M and vadose zone sample from Boring M collected at a depth of 9.5- to 10-feet bgs were analyzed for PFAS by Vista using EPA Method 537 (modified).

Stormwater, Surface Water, and Outfall Samples. Stormwater, surface water, and outfall sediment samples were analyzed for PFAS by EPA Method 537 (modified). PFAS analysis was conducted by Vista.

3.2.10 Work Plan Deviations

Several deviations from the Work Plan and Work Plan Addendum occurred during the investigation. The following presents the deviation and the rationale for each task.

- Deep Boring Modifications. For deep (Lower OD and CRSA) groundwater sample collection, a single boring approach was presented in the Work Plan. In that scenario, prevention of cross-contamination was to be achieved using sonic drilling techniques and isolation using a packer-based, deployable sampling system to collect the depth discrete groundwater samples. It was later identified that the packer system could not be confirmed PFAS-free, therefore the conservative alternative methodology of installing temporary wells in two separate borings was used to reduce the potential of vertical groundwater cross-contamination.
- Surface Water Samples. Analytical results from stormwater (MH-1 and MH-2) and surface water (SW-1) samples were received prior to completion of the investigation tasks outlined in the Work Plan. Based on those results, additional surface water samples (SW-2 and SW-3) were collected from the drainage ditch locations downstream of Port outfall OF1N (Figure 7).
- Composite Sediment Samples. For the sediment sample proposed in the Work Plan downstream of outfall OF1N, the proposed sampling approach included a 5-point composite sample with subsample locations in a "star" pattern as requested by DEQ. At the time of sampling, it was determined that the drainage ditch width was too narrow at the proposed location to apply the "star" pattern. Instead, a linear arrangement of composite subsample locations was used, with alternating subsamples collected from the center, left, and right portions of the ditch channel.
- PDX New QTA Well Sample. During the investigation activities, it was identified that a non-potable water supply well had been completed on PDX property. Upon completion, a grab groundwater sample was collected from the PDX QTA well and analyzed for PFAS as an additional data point to evaluate the potential for deep groundwater contamination resulting from the impacts to shallow groundwater observed in the vicinity of the PDX fire training facilities. The well is located approximately 1.3 miles east-southeast of the Original and Former Facilities, between the Site and the City of Portland wellfield.

4.0 Investigation Results

The following sections present the investigation results of the camera survey and the analytical results of samples submitted for chemical analyses. Laboratory analytical reports and a review of laboratory data quality are included in Appendix D. Camera survey details are presented in Table 1, analytical results are summarized in Tables 2 through 4 and 6 through 8, and summarized on Figures 4, 6, and 7. Groundwater elevation data are presented in Table 5 and on Figure 5.

4.1 Stormwater Conveyance Line Survey

To assess the integrity of the stormwater system for the purpose of assessing the potential for groundwater impacts to surface water, a video survey was conducted within an approximately 1,500 feet section of 36-inch diameter concrete stormwater conveyance pipe that flows from northeast to southwest beneath the Original and Former Facilities. The survey was completed during the dry season (September), prior to seasonal rainfall and stormwater flow into the conveyance system. The survey was conducted from manhole STS CB 3228 to STS MH 5094, (Figure 3). In general, the conveyance system appears to be in good condition, with limited areas of observed seepage, fracturing, or deterioration. The stormwater line was surveyed in five separate segments, described in Table 1 and presented on Figure 3. An estimated 2 inches of water flow was observed along the entire length of surveyed pipe. A DVD of footage from the camera survey is included as Appendix B.

Details regarding observations made during the survey are included in Table 1. The following presents a description of seepage observations made during the camera survey from STS MH 3320A to STS MH 5094 (496 feet in length). This pipe segment is located beneath the west side of the Former Facility and just north of the Original Facility. At manhole STS MH 3320A, a 4-inch diameter lateral with a filter sock was observed protruding from the south just below the manhole cover. At 18 feet downstream from STS MH 3320A, a large piece of broken concrete was observed at the bottom of the pipe (likely from catch basin STS MH 3320A). At 112 feet downstream from STS MH 3320A, a 6-inch diameter PVC lateral joined the mainline from the south. Yellow staining and minor fractures in the pipe were observed at several locations throughout this segment of pipe. Groundwater seepage and a waxy yellow build-up were observed at several locations between 324 feet and 418 feet downstream of STS MH 3320A. Heavy seepage flow was observed at 334 feet. At 369 feet, heavy staining and seepage were observed in the pipe along with seepage and black staining at an access port on the top of the pipe.

4.2 Soil Analytical Results

Four soil samples were analyzed for 14 PFAS compounds, including samples collected from Borings F and G at a depth of 0.5- to 1-foot bgs and from Boring M at depths of 1.5- to 2-feet and 9.5- to 10-feet bgs. Soil analytical data are presented in Table 2. Figure 4 presents the PFOA and PFOS concentrations in soil.

Based on concentrations of PFOS and PFOA in shallow groundwater, shallow soil samples collected from Borings F and G were analyzed to assess for a potential source of impacts to groundwater. In both of the samples, 6 of the 14 PFAS compounds (PFHxA, PFHpA, PFOA, PFAS, PFNA, and PFDA) were present at concentrations above the method reporting limit (MRL) ranging from 2.03 micrograms per kilogram (µg/kg; parts per billion) for PFDA to 42.3 µg/kg of PFNA. PFOS concentrations were 6.31 to 268 µg/kg in Borings F and G, respectively, while PFOA concentrations were11.4 to 13.1 µg/kg, respectively.

Shallow native soil and vadose zone soil samples were analyzed from Boring M located adjacent to the Current and Former Facility. This location was in relatively close proximity to monitoring well MW-4, where

groundwater was observed to have the highest combined concentration of PFOA and PFOS during April 2017 reconnaissance well sampling. For the shallow native soil sample (beneath the gravel cap) collected at a depth of 1.5- to 2-feet bgs, PFOA and PFOS concentrations were 1.94 µg/kg and 120 µg/kg, respectively. The remaining PFAS compounds were not detected. Detected PFAS compounds in the vadose zone soil sample (9.5- to 10-feet bgs), included four of the short-chain PFAS (4 to 6 carbons; PFBS, PFHxA, PFHxS, and PFHpA) at concentrations ranging from PFBS at 5.16 µg/kg to PFHxS at 22.2 µg/kg. PFOA was detected at a concentration of 649 µg/kg and PFOS was not detected at a concentration above the MRL.

The detected concentrations of PFAS in soil are below the occupational direct contact selected SLV; however, detected concentrations of select PFAS exceed the selected SLV for protection of residential drinking water with exceedance ratios ranging from 1.1 for PFHpA to 320 for PFOS.

4.3 Groundwater Elevations

Groundwater levels were measured in Site wells on April 20 and 21, 2017 and on September 26, 2017 (except for well MW-3). Depth to groundwater ranged from 2.51 (MW-14) to 10.65 (MW-5) feet bgs in April and from 4.60 (MW-14) to 11.12 (MW-5) feet bgs in September. Groundwater elevations ranged from 8.63 to 15.23 feet above mean sea level (msl) in April and from 6.83 to 13.13 feet above msl in September. Groundwater elevations are presented in Table 5. Consistent with previous observations, the groundwater elevations suggest a hydraulic gradient to the southwest toward the storm sewer (Figure 5). SPH were present in well MW-11 (0.10 foot) in September and well MW-12 (0.15 foot and 0.12 foot in April and September, respectively). SPH was last observed in well MW-12 in April 1998 at a thickness of 0.03 foot. SPH had not been previously observed in well MW-11 (1994 to present).

4.4 Groundwater Analytical Results

4.4.1 Shallow Boring Groundwater Samples

Nine PFAS compounds (including PFBS, PFHpA, PFHxS, PFHxA, PFOS, PFOA, PFNA, PFDA, and PFUnA) were detected in one or more of the 23 groundwater samples collected from shallow boring locations. Detected PFOA concentrations in shallow groundwater ranged from 1.31 ng/L in Boring B to 8,810 ng/L in the Boring H groundwater sample. PFOS concentrations ranged from 1.70 ng/L in the Boring A groundwater sample to 3,330 ng/L in the Boring J groundwater sample. PFAS results for shallow groundwater samples are presented in Table 3 and on Figure 6. Concentrations of PFOS and PFOA generally attenuated with downgradient distance from the Original and Former Facilities. In general, PFOS compounds were present at higher concentrations than PFOA concentrations in the vicinity of the Original and Former Facilities.

In addition to PFAS analysis, groundwater samples from Borings I and J were analyzed for metals (total and dissolved), diesel- and oil-range hydrocarbons, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs) in accordance with the Work Plan. Samples from Borings A and D were analyzed for

diesel- and oil-range hydrocarbons and VOCs. Arsenic (total and dissolved) was detected in groundwater samples from Borings I and J at concentrations above applicable SLVs for residential ingestion. Barium (total and dissolved) and lead (total) were detected in groundwater samples from boring locations I and J above the applicable SLV. These metal concentrations may represent background conditions. Diesel, oil, VOCs, PCBs and PAHs were not detected in the shallow groundwater samples from Borings I and J. Diesel, oil, and VOCs were not detected in the shallow groundwater samples from Borings A and D. Results for diesel, oil, VOCs, PCBs, metals and PAHs are presented in Table 4.

The detected concentrations of PFAS in shallow groundwater in Borings D through K, O, P, V, and X exceed the selected SLV for drinking water, with exceedance ratios of up to 160.

Evaluation of these results suggests that the lateral extent of shallow groundwater impacts has been delineated south and east of the fire training facilities, as represented by concentrations in Borings L, N, Q, R, S, T, U, and W below the selected SLV. In addition, the combined PFOS/PFOA concentrations are below the selected SLV at Borings A, B, and C, and less than 4 times the selected SLV level at Borings D, V, and X, indicating that PFAS impacts have been relatively well defined to the north and northeast. Boring locations H, P, and V (exceedance ratios of 126, 2.2, and 3.7, respectively), installed west of the Original and Former Facilities have combined PFOS/PFOA concentrations that exceed the selected SLV. Based on these results, additional investigation is needed to identify the lateral extent of PFAS impacts in shallow groundwater west of the Site.

4.4.2 Deep Boring Groundwater Samples

Groundwater samples were collected from Boring M Shallow at 40 feet bgs and Boring M Deep at 61.5 feet bgs. PFAS results for deep groundwater samples are presented in Table 3 and on Figure 6. The groundwater sample collected at 40 feet bgs had concentrations of PFOA at 61.5 ng/L and PFOS at 963 ng/L. The groundwater sample collected at a depth of 61.5 feet bgs had PFOA at 9.34 ng/L and PFOS at 60.5 ng/L; the combined concentration in the deeper sample is just below the selected SLV level of 70 ng/L. The combined concentration of PFOA and PFOS of groundwater at 40 feet bgs exceeded the selected SLV level for drinking water by a factor of 15.

4.4.3 Reconnaissance Groundwater Monitoring

Analytical results for the April 2017 reconnaissance groundwater monitoring, which included the collection of 14 shallow groundwater samples (including one duplicate sample) from 13 existing site monitoring wells that had been installed as part of prior Port investigation of the fire training facilities, identified detected concentrations of TPH, PAHs, and VOCs in well MW-11 (1,3-dichlorobenzene was detected in nine other Site wells); anthracene, fluorene, and PCBs in well MW-10A; and metals in each well. Table 4 presents the analytical results for TPH, VOCs, PAHs, PCBs, and metals.

The detected concentrations of PFAS in shallow groundwater in the existing monitoring well network exceeded the selected SLV with exceedance ratios ranging up to 3,000. PFAS results are presented in Table 3 and on Figure 6.

4.4.4 Groundwater – QTA Well

PFAS were not detected above the MRL in the PDX QTA well groundwater sample. The MRL for PFOA was 2.23 ng/L and 1.05 ng/L for PFOS. PFAS results are presented in Table 3.

4.4.5 Groundwater – PFAS TOP Assay

Total oxidizable precursor (TOP) assay analysis was performed on a groundwater sample collected from well MW-4. Current methodologies for the analysis of PFAS are designed to measure a discrete list of 14 to 30 compounds. There are many additional PFAS compounds that are not detected as discrete compounds by existing analytical methods. The purpose of the TOP assay is to assess for the presence of PFAS compounds that may, given time, weather to substances of concern such as PFOA.

TOP assay results are presented in Table 6. These results (based on one sample) indicate that there is little potential for the PFAS observed in the groundwater sampled from well MW-4 to degrade to PFOA over time.

4.5 Stormwater and Surface Water Analytical Results

Nine PFAS compounds (including PFBS, PFHpA, PFHxS, PFHxA, PFOS, PFOA, PFNA, PFDA, and PFUnA) were detected in one or more of the stormwater or surface water samples collected during the investigation. Detected PFOA concentrations in stormwater ranged from 175 ng/L in sample MH-2 to 1,220 ng/L in sample MH-1. PFOS concentrations ranged from 28.0 ng/L in sample MH-2 to 6,610 ng/L in sample MH-1. PFAS results for stormwater and surface water are presented in Table 7. As presented on Figure 7, sample location MH-2 (STSCB3228) is upstream of the Original and Former Facilities and sample MH-1 (STSMH125) is on the downstream side of the Site, adjacent to the Original Facility. Detected PFOA concentrations in surface water ranged from 76.8 ng/L in sample SW-3 to 1,110 ng/L in the sample SW-1 (Ditch 1). PFOS concentrations ranged from 323 ng/L in sample SW-3 to 14,500 ng/L in sample SW-1 (Ditch 1) in surface water samples. As presented on Figure 7, sample location SW-3 is the furthest downgradient of the Site and sample location SW-1 (Ditch 1) is northwest of and in close proximity to the Site. The surface water concentrations of PFOS and PFOA detected in sample location SW-3 had the lowest relative concentrations of PFAS indicating that PFAS concentrations in stormwater attenuate with distance from the source area.

The PFOS concentration observed at sample location SW-1 (Ditch 1), is the highest relative concentration observed outside of the source area (wells MW-3 and MW-4) while the PFOA concentration is consistent with and the same order of magnitude as the concentrations observed in the source area (Figures 6 and 7). Groundwater elevation data were used to compare depth to groundwater on either side of the drainage ditch

to identify if impacted shallow groundwater was likely interfacing with surface water. Depth to groundwater is contained on lithologic logs in Appendix C. On September 28, 2017, Borings H, I, and J were installed. Depth to groundwater at Borings I and J, east of the drainage ditch, were identified to be 5.70 and 4.66 feet bgs, respectively, and the depth to groundwater at Boring H was 11.65 feet bgs, west of the drainage ditch. The variation of up to 7 feet of groundwater elevation in approximately 700 feet indicates a strong potential for groundwater seepage into the drainage ditch and surface water systems in and around the Site. Based on the concentrations observed in the stormwater and surface waters samples collected on and offsite; results of the stormwater conveyance system survey detailed above, and groundwater elevation data collected during installation of borings H, I, and J, PFAS-impacted shallow groundwater is likely entering the surface water and stormwater systems.

Detected concentrations of PFAS in stormwater from samples MH-1 and OF1N-NW and surface water from drainage ditch (sample SW-1) exceeded the selected SLV for construction workers. Exceedance ratios ranged from 1.3 for PFOS to 5.5 for PFOA. Concentrations detected in sample location SW-3, located the furthest downgradient from the Site, do not exceed the SLV for construction workers. Analytical results of stormwater and surface water samples did not exceed selected SLVs for aquatic species.

4.6 Sediment Analytical Results

PFAS were not detected above the laboratory reporting limit of 2,050 nanograms per kilogram (ng/kg) in the composite sediment sample collected at a depth interval of 0 to 24 inches. PFAS sediment results are presented on Table 8.

5.0 Conclusions

During three phases between April and October 2017, the Reconnaissance Well Sampling and Investigation Work Plan at the Current, Original and Former Facilities was implemented. The investigation included the installation of 25 borings for collection of soil and grab groundwater samples; sampling of five existing monitoring wells; collection of three surface water samples, three stormwater samples, and 3 composite sediment samples; water level monitoring at existing Site monitoring wells; and completion of a stormwater conveyance survey. The results of the investigation are summarized as follows.

- Shallow Groundwater – PFAS were detected above the SLVs in shallow groundwater. The lateral extent of PFAS impacts above the EPA HA level to shallow groundwater has been delineated to the north, south, and east of the fire training facilities. Further delineation to the west is needed.
- Deep Groundwater – Beneath the fire training facilities, PFAS compounds are present within the Lower OD unit at concentrations above the selected SLVs and in the CRSA at concentrations below the selected SLVs. PFAS compounds were not detected in the sample collected from a well

screened within the CRSA at the PDX QTA Facility, which is between the fire training area and the closest CSSW well, also screened in the CRSA.

- Soil – Concentrations of PFAS detected in soil are below the selected SLVs for an occupational worker; however, select PFAS soil concentrations are above the selected SLV for protection of residential drinking water.
- Stormwater and Surface Water – Stormwater and surface water underneath, in the vicinity of, and downgradient of the impacted area have concentrations that exceed the selected SLV for construction workers; however, at the property boundary and off-site, the PFAS concentrations in surface water are below the construction worker SLV. Detected concentrations of PFAS in stormwater and surface water samples collected during the investigation were below the selected SLVs for aquatic organisms.
- Sediment – PFAS compounds were not detected in sediment collected in the vicinity of the outfall that drains the basin containing the fire training facilities.

6.0 References

Apex, 2012. Beneficial Land and Water Use Survey Update, Portland International Airport. December 12, 2012.

Apex, 2017a. Reconnaissance Well Sampling Work Plan, Port of Portland – Fire Training Facilities. April 13, 2017.

Apex, 2017b. Letter to DEQ RE: Reconnaissance Well Sampling – April 2017, Original and Former Fire Training Facilities, Portland International Airport. Portland, Oregon, ECSI No. 3324. June 19, 2017.

Apex, 2017c. Groundwater Monitoring Report (September 2007). Investigation Work Plan, Original and Former Fire Training Facilities, Portland International Airport. Portland, Oregon, ECSI No. 3324. August 29, 2017.

Apex, 2017d. Letter to DEQ RE: Investigation Work Plan Amendment, Investigation Work Plan, Original and Former Fire Training Facilities, Portland International Airport. Portland, Oregon, ECSI No. 3324. September 19, 2017.

Ash Creek, 2007. Groundwater Monitoring Report (September 2007). Original and Former Fire Training Pits, Portland International Airport. Portland, Oregon. October 16, 2007.

Canadian Council of Ministers of Environment, 2017. Canadian Environmental Protection Act, 1999, Federal Environmental Quality Guidelines, Perfluorooctane Sulfonate (PFOS). February 2017.

City of Portland, 2009. Portland Water Bureau Response to Portland City Council Questions on Bull Run Treatment Presentation. June 23, 2009.

City of Portland, 2017. Development & Use of Groundwater. Online article (viewed December 6, 2017). https://www.portlandoregon.gov/water/article/344756.

Hart Crowser, 2001. Groundwater Monitoring Report, Original and Former Fire Training Pits, Portland International Airport, Portland, Oregon. Port of Portland. July 25, 2001.

Hart Crowser, 2002. Remedial Action Closure Report, Original and Former Fire Training Pits, Portland International Airport, Portland, Oregon. Port of Portland. November 22, 2002.

Hart Crowser, 2004. Land and Beneficial Water Use Survey. Portland International Airport, Portland, Oregon. Port of Portland. August 11, 2004.

Table 1
Stormwater Conveyance System Survey Results
Fire Training Facilities
Portland International Airport
Portland, Oregon

Start Point	Stop Point	Length of Survey (feet)	Site Location	Observations
STSCB3328	STSMH3288	410	Upstream of Former Fire Training Facility	Limited areas of staining from seepage at the joints of the pipe.
STSMH33288	STSMH3303	154		
STSMH3303	STSMH3320	162		
STSMH3320	STSMH3320A	318	Underneath Former Fire Training Facility	Yellow seepage stains were observed, including staining at nearly all pipe joints. Approximately 15 feet downstream from STS MH 3320, an accumulation of yellow sediment was observed at the confluence of a 6-inch diameter lateral. Similar sediment build-up was observed again at a distance of 37 feet. Some small cracks and concrete flaking was observed near pipe joints at several locations. Some sediment accumulation (up to approximately 1-inch thick) was observed at the bottom of the pipe. At 314 feet from STS MH 3320, near the downstream terminus of the segment, a large piece of impassable concrete had flaked off from the wall of catch basin STS MH 3320A.
STSMH3320A	STSMH5094	496	Underneath and downstream of Former Fire Training Facility	At manhole STS MH 3320A, a 4-inch diameter lateral with a filter sock was observed protruding from the south just below the manhole cover. At 18 feet downstream from STS MH 3320A, a large piece of broken concrete was observed at the bottom of the pipe (likely from catch basin STS MH 3320A). At 112 feet downstream from STS MH 3320A, a 6-inch diameter PVC lateral joined the mainline from the south. Yellow staining and minor fractures in the pipe were observed at several locations throughout this segment of pipe. Groundwater seepage and a waxy yellow build-up was observed at several locations between 324 feet and 418 feet downstream of STS MH 3320A. Heavy seepage flow was observed at 334 feet. At 369 feet, seepage and black staining was observed at an access port on the top of the pipe. Heavy staining and seepage was observed in this segment of pipe.

Table 2
Soil Analytical Results – PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

	Sample Identification:	B-F-1	B-G-1	B-M-1	B-M-2	Risk-Based Screening Levels	
	Sample Depth (feet):	0.5-1	0.5-1	1.5-2	9.5-10	Occupational Direct Contact	Residential Protection of Drinking Water
	Sample Date:	8/29/2017	8/29/2017	10/2/2017	10/3/2017		
		Concentrations in ug/kg					
PFBS	Perfluorobutanesulfonic acid (C4)	<1.93	<1.94	<1.75	5.16	16,000,000	130
PFHxA	Perfluorohexanoic acid (C6)	2.19	6.37	<1.75	16.1	2,600	0.24
PFHxS	Perfluorohexanesulfonoic acid (C6)	<1.93	<1.94	<1.75	22.2	2,000	1
PFHpA	Perfluoroheptanoic acid (C7)	2.57	4.64	<1.75	4.34	16,000	2.3
PFOA	Perfluorooctanoic acid (C8)	11.4	13.1	1.94	6.49	16,400	0.172
PFOS	Perfluorooctanesulfonic acid (C8)	2.68	6.31	120	<3.88	16,400	0.378
PFNA	Perfluorononaoic acid (C9)	42.3	22.5	<1.75	<3.88	4,900	1.5
PFDA	Perfluorodecanoic acid (C10)	2.03	6.62	<1.75	<3.88	8,800	11
PFUnA	Perfluoroundecanoic acid (C11)	<1.93	<1.94	<1.75	<3.88	8,200	9.2
PFDoA	Perfluorododecanoic acid (C12)	<1.93	<1.94	<1.75	<3.88	7,000	17
PFTrDA	Perfluorotridecanoic acid (C13)	<1.93	<1.94	<1.75	<3.88	8,200	30
PFTeDA	Perfluorotetradecanoic acid (C14)	<1.93	<1.94	<1.75	<3.88	8,200	56
MeFOSAA	Methyl perfluorooctanesulfonamidoacetic acid (C8)	<1.93	<1.94	<1.75	<3.88	--	--
EtFOSAA	Ethyl perfluorooctanesulfonamidoacetic acid (C8)	<1.93	<1.94	<1.75	<3.88	--	--

Notes:

1. ug/kg = Microogram per kilogram (ppt [parts per billion]).
2. Bold values indicate the compound was detected above laboratory reporting limits.
3. < = Compound not detected at or above laboratory reporting limit shown.
4. Risk-based screening levels are EPA RSLs (Industrial, THQ.=1.0) for PFBS, PFOA, and PFOS. All others from State of Texas: Commercial 30 Acres for direct contact; Residential 30 Acres - Ingestion for groundwater protection. See Table A-7
5. Shading indicates the analyte concentration exceeds the protection of groundwater screening level.

Table 3
Groundwater Analytical Results – PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:		MW-1	MW-3	MW-4	MW-6		MW-7		MW-8	MW-9	MW-10A	MW-13	MW-14	PDX QTA Well	Screening Level
Sample Date:		4/20/2017	4/20/2017	4/20/2017	9/26/2017	9/26/2017 DUP	4/20/2017	4/20/2017 DUP	9/26/2017	4/20/2017	4/21/2017	9/26/2017	9/26/2017	8/24/2017	
Concentrations in ng/L															
PFBS	Perfluorobutanesulfonic acid (C4)	60.2	255	5,580	11.0	12.1	154	137	62.7	90.7	35.8	10.9	9.26	<2.23	400,000
PFHxA	Perfluorohexanoic acid (C6)	461	1,640	30,400	338	351	1280	1100	428	460	363	750	73.1	<2.23	93
PFHxS	Perfluorohexanesulfonoic acid (C6)	1,190	4,210	23,900	459	456	495	589	66.6	1,910	1,040	301	157	<2.23	93
PFHpA	Perfluoroheptanoic acid (C7)	188	676	7,130	240	249	505	434	30.1	99.4	193	475	59.5	<2.23	560
PFOA	Perfluorooctanoic acid (C8)	1,050	5,820	9,930	383	439	476	568	165	7,880	30,900	717	98.8	<2.23	70
PFOS	Perfluorooctanesulfonic acid (C8)	8,680	23,700	203,000	1,080	1,160	2,710	819	130	1,360	342	1,040	1,710	<1.05	
PFNA	Perfluorononaoic acid (C9)	134	182	<472	149	158	76.5	83.9	9.95	24.8	43.7	394	66.0	<2.23	290
PFDA	Perfluorodecanoic acid (C10)	15.1	8.41	12.2	11.3	10.4	<1.81	2.27	<1.11	26.8	21.8	29.5	<1.08	<2.23	370
PFUnA	Perfluoroundecanoic acid (C11)	<1.79	<1.82	<1.84	<1.07	<1.09	<1.81	<1.81	<1.11	<1.78	<1.83	<1.06	<1.08	<2.23	290
PFDoA	Perfluorododecanoic acid (C12)	<1.79	<1.82	<1.84	<1.07	<1.09	<1.81	<1.81	<1.11	<1.78	<1.83	<1.06	<1.08	<2.23	290
PFTrDA	Perfluorotridecanoic acid (C13)	<1.79	<1.82	<1.84	<1.07	<1.09	<1.81	<1.81	<1.11	<1.78	<1.83	<1.06	<1.08	<2.23	290
PFTeDA	Perfluorotetradecanoic acid (C14)	<1.79	<1.82	<1.84	<1.07	<1.09	<1.81	<1.81	<1.11	<1.78	<1.83	<1.06	<1.08	<2.23	290
MeFOSAA	Methyl perfluorooctanesulfonamidoacetic acid (C8)	<1.79	<1.82	<1.84	<1.07	<1.09	<1.81	<1.81	<1.11	<1.78	<1.83	<1.06	<1.08	<2.23	--
EtFOSAA	Ethyl perfluorooctanesulfonamidoacetic acid (C8)	<1.79	<1.82	<1.84	<1.07	<1.09	<1.81	<1.81	<1.11	<1.78	<1.83	<1.06	<1.08	<2.23	--

See notes at end of table.

Table 3
Groundwater Analytical Results – PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

	Sample Identification:	B-A-GW	B-B-GW	B-C-GW	B-D-GW	B-E-GW	B-F-GW	B-G-GW	B-H-GW	B-I-GW	B-J-GW	B-K-GW	B-L-GW	Screening Level
	Sample Date:	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	8/29/2017	8/29/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	
		Concentrations in ng/L												
PFBS	Perfluorobutanesulfonic acid (C4)	4.57	<1.05	<1.05	15.7	8.04	21.8	27.2	<1.11	12.7	16.1	16.7	<1.09	400,000
PFHxA	Perfluorohexanoic acid (C6)	13.0	<1.05	<1.05	38.2	3,220	11,100 H	14,400 H	3,640	81.2	377	72.0	<1.09	93
PFHxS	Perfluorohexanesulfonoic acid (C6)	23.9	<1.05	<1.05	112	85.4	347 H	200 H	18.4	254	763	317	<1.09	93
PFHpA	Perfluoroheptanoic acid (C7)	13.3	<1.05	<1.05	24.6	1,310	5,240	5,860	738	57.3	282	57.9	2.32	560
PFOA	Perfluorooctanoic acid (C8)	32.9	1.31 J+	1.43 J+	93.6	1,020	5,410	5,410	8,810	80.0	524	221	20.7	70
PFOS	Perfluorooctanesulfonic acid (C8)	1.70 J+	2.29 J+	3.77 J+	4.73 J+	17.2	138 H	56.2 H	34.6	3,150	3,330	513	2.01 J+	
PFNA	Perfluorononaoic acid (C9)	<1.06	<1.05	<1.05	1.87	208	5,070	772	3.35	194	350	33.6	<1.09	290
PFDA	Perfluorodecanoic acid (C10)	<1.06	<1.05	<1.05	<1.09	1.99	22.7	14.5	1.23	14.3	19.6	1.59	<1.09	370
PFUnA	Perfluoroundecanoic acid (C11)	<1.06	<1.05	<1.05	<1.09	<1.10	<2.17	<2.25	<1.11	1.52	1.51	<1.06	<1.09	290
PFDoA	Perfluorododecanoic acid (C12)	<1.06	<1.05	<1.05	<1.09	<1.10	<2.17	<2.25	<1.11	<1.08	<1.07	<1.06	<1.09	290
PFTrDA	Perfluorotridecanoic acid (C13)	<1.06	<1.05	<1.05	<1.09	<1.10	<2.17	<2.25	<1.11	<1.08	<1.07	<1.06	<1.09	290
PFTeDA	Perfluorotetradecanoic acid (C14)	<1.06	<1.05	<1.05	<1.09	<1.10	<2.17	<2.25	<1.11	<1.08	<1.07	<1.06	<1.09	290
MeFOSAA	Methyl perfluorooctanesulfonamidoacetic acid (C8)	<1.06	<1.05	<1.05	<1.09	<1.10	<2.17	<2.25	<1.11	<1.08	<1.07	<1.06	<1.09	--
EtFOSAA	Ethyl perfluorooctanesulfonamidoacetic acid (C8)	<1.06	<1.05	<1.05	<1.09	<1.10	<2.17	<2.25	<1.11	<1.08	<1.07	<1.06	<1.09	--

See notes at end of table.

Table 3
Groundwater Analytical Results – PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

	Sample Identification:	M-GW-1 (40')	M-GW-2 (61.5')	B-N-GW	B-O-GW	B-P-GW	B-Q-GW	B-R-GW	B-S-GW	B-T-GW	B-U-GW	B-V-GW	B-W-GW	B-X-GW	Screening Level
	Sample Date:	10/3/2017	10/3/2017	8/29/2017	8/29/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/29/2017	8/29/2017	9/29/2017	9/29/2017	9/29/2017	
		Concentrations in ng/L													
PFBS	Perfluorobutanesulfonic acid (C4)	61.0	10.1	7.19	5.92	<2.15	<2.20	<2.13	<2.12	<2.20	<2.12	14.1	<1.08	20.0	400,000
PFHxA	Perfluorohexanoic acid (C6)	223	32.3	2.75 H	19.5 H	17.9 H	11.1 H	3.88 H	6.28 H	2.75 H	3.02 H	40.6	<1.08	114	93
PFHxS	Perfluorohexanesulfonoic acid (C6)	268	29.0	83.4 H	67.0 H	44.5 H	7.61 H	4.82 H	3.90 H	2.52 H	<2.40 H	96.5	<1.08	169	93
PFHpA	Perfluoroheptanoic acid (C7)	48.2	6.77	<2.12	<2.13	9.78	4.21	<2.13	<2.12	<2.20	<2.12	38.4	<1.08	106	560
PFOA	Perfluorooctanoic acid (C8)	61.5	9.34	<2.12	396	149	27.2	12.3 J+	5.36 J+	<2.20	<2.12	234	1.83 J+	204	70
PFOS	Perfluorooctanesulfonic acid (C8)	963	60.5	2.84 J+, H	20.8 H	4.87 J+, H	6.09 J+, H	18.8 H	2.25 J+, H	2.69 J+, H	2.51 J+, H	27.5	<1.08	13.7	
PFNA	Perfluorononaoic acid (C9)	2.50	<1.00	<2.12	<2.13	<2.15	<2.20	<2.13	<2.12	<2.20	<2.12	7.55	<1.08	3.46	290
PFDA	Perfluorodecanoic acid (C10)	<1.00	<1.00	<2.12	<2.13	<2.15	<2.20	<2.13	<2.12	<2.20	<2.12	<1.11	<1.08	<1.08	370
PFUnA	Perfluoroundecanoic acid (C11)	<1.00	<1.00	<2.12	<2.13	<2.15	<2.20	<2.13	<2.12	<2.20	<2.12	<1.11	<1.08	<1.08	290
PFDoA	Perfluorododecanoic acid (C12)	<1.00	<1.00	<2.12	<2.13	<2.15	<2.20	<2.13	<2.12	<2.20	<2.12	<1.11	<1.08	<1.08	290
PFTrDA	Perfluorotridecanoic acid (C13)	<1.00	<1.00	<2.12	<2.13	<2.15	<2.20	<2.13	<2.12	<2.20	<2.12	<1.11	<1.08	<1.08	290
PFTeDA	Perfluorotetradecanoic acid (C14)	<1.00	<1.00	<2.12	<2.13	<2.15	<2.20	<2.13	<2.12	<2.20	<2.12	<1.11	<1.08	<1.08	290
MeFOSAA	Methyl perfluorooctanesulfonamidoacetic acid (C8)	<1.00	<1.00	<2.12	<2.13	<2.15	<2.20	<2.13	<2.12	<2.20	<2.12	<1.11	<1.08	<1.08	--
EtFOSAA	Ethyl perfluorooctanesulfonamidoacetic acid (C8)	<1.00	<1.00	<2.12	<2.13	<2.15	<2.20	<2.13	<2.12	<2.20	<2.12	<1.11	<1.08	<1.08	--

Notes:

1. ng/L = Nanogram per liter (ppt [parts per trillion]).
2. Bold values indicate the compounds was detected above laboratory reporting limits.
3. < = Compound not detected at or above laboratory reporting limit shown.
4. J+ = Data results are estimated and may be biased high.
5. H = Sample was extracted outside of the EPA 537 recommended holding time of 14 days.
6. Screening level is residential drinking water: Health advisory limit from the United States Environmental Protection Agency (U.S. EPA) for combined PFOA and PFOS; EPA RSL (THQ=1) for PFBS; and State of Texas for remainder. See Table A-1
7. -- = Value not available.
8. Shading indicates concentration of analyte was detected above the screening level.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:	4/20/2017	4/21/2017	4/20/2017	4/20/2017	4/21/2017	4/21/2017		
Total Petroleum Hydrocarbons (µg/L)								
Diesel	<93.5	<95.2	<93.5	<93.5	<95.2	<95.2	--	100
Oil	<187	<190	<187	<187	<190	<190	--	300
Volatile Organic Compounds (µg/L)								
Acetone	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	1500	--
Acrylonitrile	--	--	--	--	--	--	2600	0.052
Benzene	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	130	0.46
Bromobenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	--	--
Bromochloromethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
Bromodichloromethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	0.13
Bromoform	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	320	3.3
Bromomethane	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	--	7.5
2-Butanone (MEK)	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	14000	--
n-Butylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
sec-Butylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
tert-Butylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
Carbon disulfide	--	--	--	--	--	--	0.92	--
Carbon tetrachloride	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	74	0.46
Chlorobenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	50	77
Chloroethane	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	--	21000
Chloroform	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	1240	0.22
Chloromethane	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	--	190
2-Chlorotoluene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
4-Chlorotoluene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
1,2-Dibromo-3-chloropropane	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	--	--
Dibromochloromethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	0.17
1,2-Dibromoethane (EDB)	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	--	0.0075
Dibromomethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
1,2-Dichlorobenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	14	300
1,3-Dichlorobenzene	0.300 J	0.265 J	0.500	0.320 J	0.284 J	<0.250	71	--
1,4-Dichlorobenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	15	0.48
Dichlorodifluoromethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
1,1-Dichloroethane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	47	2.8
1,2-Dichloroethane (EDC)	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	20000	0.17
1,1-Dichloroethene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	25	280

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:	4/20/2017	4/21/2017	4/20/2017	4/20/2017	4/21/2017	4/21/2017		
Volatile Organic Compounds (µg/L)								
cis-1,2-Dichloroethene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	590	36
trans-1,2-Dichloroethene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	590	360
1,2-Dichloropropane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	5700	--
1,3-Dichloropropane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
2,2-Dichloropropane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
1,1-Dichloropropene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
cis-1,3-Dichloropropene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
trans-1,3-Dichloropropene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
Ethylbenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	7.3	1.5
Hexachlorobutadiene	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	9.3	--
2-Hexanone	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	99	--
Isopropylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	440
4-Isopropyltoluene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
Methylene chloride	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	2200	11
4-Methyl-2-pentanone (MiBK)	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	170	--
Methyl tert-butyl ether (MTBE)	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	14
Naphthalene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	620	0.17
n-Propylbenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	--	--
Styrene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	1200
1,1,1,2-Tetrachloroethane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	186	--
1,1,2,2-Tetrachloroethane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	2400	--
Tetrachloroethene (PCE)	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	840	12
Toluene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	9.8	1100
1,2,3-Trichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
1,2,4-Trichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	110	--
1,1,1-Trichloroethane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	11	8000
1,1,2-Trichloroethane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	9400	0.28
Trichloroethene (TCE)	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	21900	0.49
Trichlorofluoromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	--	1100
1,2,3-Trichloropropane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
1,2,4-Trimethylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	15
1,3,5-Trimethylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	110

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:	4/20/2017	4/21/2017	4/20/2017	4/20/2017	4/21/2017	4/21/2017		
Volatile Organic Compounds (µg/L)								
Vinyl chloride	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	--	0.027
m,p-Xylene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	13	190
o-Xylene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250		
Polychlorinated Biphenyls (µg/L)								
Aroclor 1016	<0.0467	--	<0.0467	<0.0467	--	--	--	--
Aroclor 1221	<0.0467	--	<0.0467	<0.0467	--	--	0.28	--
Aroclor 1232	<0.0467	--	<0.0467	<0.0467	--	--	0.58	--
Aroclor 1242	<0.0467	--	<0.0467	<0.0467	--	--	0.053	--
Aroclor 1248	<0.0467	--	<0.0467	<0.0467	--	--	0.081	--
Aroclor 1254	<0.0467	--	<0.0467	<0.0467	--	--	0.033	--
Aroclor 1260	<0.0467	--	<0.0467	<0.0467	--	--	94	--
Total Polychlorinated Biphenyls	<0.0467	--	<0.0467	<0.0467	--	--	0.014	0.006
Semi-Volatile Organic Compounds (µg/L)								
Acenaphthene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	520	510
Acenaphthylene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	--	--
Anthracene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	13	>S
Benz(a)anthracene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	0.027	0.012
Benzo(a)pyrene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	0.014	0.0034
Benzo(b)fluoranthene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	--	0.034
Benzo(k)fluoranthene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	--	0.34
Benzo(g,h,i)perylene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	--	--
Chrysene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	--	>S
Dibenz(a,h)anthracene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	--	0.0034
Dibenzofuran	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	3.7	--
Fluoranthene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	6.16	>S
Fluorene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	3.9	280
Indeno(1,2,3-cd)pyrene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	--	0.034
1-Methylnaphthalene	<0.0381	<0.0377	<0.0385	<0.0381	<0.0377	<0.0377	2.1	--
2-Methylnaphthalene	<0.0381	<0.0377	<0.0385	<0.0381	<0.0377	<0.0377	--	--
Naphthalene	<0.0381	<0.0377	<0.0385	<0.0381	<0.0377	<0.0377	620	0.17
Phenanthrene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	6.3	--
Pyrene	<0.0190	<0.0189	<0.0192	<0.0190	<0.0189	<0.0189	--	110

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:		MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:		4/20/2017	4/21/2017	4/20/2017	4/20/2017	4/21/2017	4/21/2017		
Metals (µg/L)									
Arsenic	Total	27.6	4.02	5.90	3.00	4.58	2.73	150	0.052
	Dissolved	28.1	3.39	5.48	2.63	4.22	2.36		
Barium	Total	60.6	95.1	80.2	51.6	54.1	20.5	4.0	--
	Dissolved	55.3	76.4	76.6	44.5	47.9	19.3		
Cadmium	Total	0.156 J	0.133 J	0.0667 J	<0.0400	0.0444 J	<0.0400	2.2	20
	Dissolved	<0.0400	<0.0400	0.0444 J	<0.0400	<0.0400	<0.0400		
Chromium	Total	1.04	0.656 J	2.94	0.656 J	2.03	<0.500	74	30,000
	Dissolved	1.09	1.77	2.29	0.967 J	1.77	<0.500		
Lead	Total	0.167 J	0.167 J	0.189 J	<0.100	0.644	<0.100	2.5	15
	Dissolved	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100		
Mercury	Total	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	0.77	6.0
	Dissolved	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400		
Selenium	Total	<0.500	<0.500	0.533 J	<0.500	0.500 J	<0.500	5.0	--
	Dissolved	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500		
Silver	Total	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.12	100
	Dissolved	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100		

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:	MW-7		MW-8	MW-9	MW-10A	MW-11	MW-13	MW-14	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:	4/20/2017	4/20/2017 DUP	4/21/2017	4/20/2017	4/21/2017	4/20/2017	4/21/2017	4/21/2017		
Total Petroleum Hydrocarbons (µg/L)										
Diesel	<93.5	<93.5	<95.2	<93.5	<95.2	1,900 J	<95.2	<95.2	--	100
Oil	<187	<187	<190	<187	<190	3,230 J	<190	<190	--	300
Volatile Organic Compounds (µg/L)										
Acetone	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	1500	--
Acrylonitrile	--	--	--	--	--	--	--	--	2600	0.052
Benzene	<0.100	<0.100	<0.100	<0.100	<0.100	0.108 J	<0.100	<0.100	130	0.46
Bromobenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	--	--
Bromochloromethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
Bromodichloromethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	0.13
Bromoform	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	320	3.3
Bromomethane	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	--	7.5
2-Butanone (MEK)	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	14000	--
n-Butylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	0.672 J	<0.500	<0.500	--	--
sec-Butylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	0.595 J	<0.500	<0.500	--	--
tert-Butylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
Carbon disulfide	--	--	--	--	--	--	--	--	0.92	--
Carbon tetrachloride	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	74	0.46
Chlorobenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	50	77
Chloroethane	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	--	21000
Chloroform	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	1240	0.22
Chloromethane	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	--	190
2-Chlorotoluene	<0.500	<0.500	<0.500	<0.500	<0.500	1.35	<0.500	<0.500	--	--
4-Chlorotoluene	<0.500	<0.500	<0.500	<0.500	<0.500	0.734 J	<0.500	<0.500	--	--
1,2-Dibromo-3-chloropropane	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	--	--
Dibromochloromethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	0.17
1,2-Dibromoethane (EDB)	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	--	0.0075
Dibromomethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
1,2-Dichlorobenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	14	300
1,3-Dichlorobenzene	0.330 J	<0.250	0.255 J	0.410 J	<0.250	0.339 J	<0.250	<0.250	71	--
1,4-Dichlorobenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	15	0.48
Dichlorodifluoromethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
1,1-Dichloroethane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	47	2.8
1,2-Dichloroethane (EDC)	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	20000	0.17
1,1-Dichloroethene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	25	280

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:	MW-7		MW-8	MW-9	MW-10A	MW-11	MW-13	MW-14	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:	4/20/2017	4/20/2017 DUP	4/21/2017	4/20/2017	4/21/2017	4/20/2017	4/21/2017	4/21/2017		
Volatile Organic Compounds (µg/L)										
cis-1,2-Dichloroethene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	590	36
trans-1,2-Dichloroethene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	590	360
1,2-Dichloropropane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	5700	--
1,3-Dichloropropane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
2,2-Dichloropropane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
1,1-Dichloropropene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
cis-1,3-Dichloropropene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
trans-1,3-Dichloropropene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
Ethylbenzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	7.3	1.5
Hexachlorobutadiene	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	9.3	--
2-Hexanone	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	99	--
Isopropylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	0.661 J	<0.500	<0.500	--	440
4-Isopropyltoluene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
Methylene chloride	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	2200	11
4-Methyl-2-pentanone (MiBK)	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	170	--
Methyl tert-butyl ether (MTBE)	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	14
Naphthalene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	620	0.17
n-Propylbenzene	<0.250	<0.250	<0.250	<0.250	<0.250	1.78	<0.250	<0.250	--	--
Styrene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	1200
1,1,1,2-Tetrachloroethane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	186	--
1,1,2,2-Tetrachloroethane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	2400	--
Tetrachloroethene (PCE)	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	840	12
Toluene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	9.8	1100
1,2,3-Trichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
1,2,4-Trichlorobenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	110	--
1,1,1-Trichloroethane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	11	8000
1,1,2-Trichloroethane	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	9400	0.28
Trichloroethene (TCE)	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	21900	0.49
Trichlorofluoromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	--	1100
1,2,3-Trichloropropane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
1,2,4-Trimethylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	78.8	<0.500	<0.500	--	15
1,3,5-Trimethylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	13.5	<0.500	<0.500	--	110

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:	MW-7		MW-8	MW-9	MW-10A	MW-11	MW-13	MW-14	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:	4/20/2017	4/20/2017 DUP	4/21/2017	4/20/2017	4/21/2017	4/20/2017	4/21/2017	4/21/2017		
Volatile Organic Compounds (µg/L)										
Vinyl chloride	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	--	0.027
m,p-Xylene	<0.500	<0.500	<0.500	<0.500	<0.500	0.954 J	<0.500	<0.500	13	190
o-Xylene	<0.250	<0.250	<0.250	<0.250	<0.250	1.32	<0.250	<0.250		
Polychlorinated Biphenyls (µg/L)										
Aroclor 1016	<0.0472	<0.0472	--	<0.0472	<0.0472	--	--	--	--	--
Aroclor 1221	<0.0472	<0.0472	--	<0.0472	<0.0472	--	--	--	0.28	--
Aroclor 1232	<0.0472	<0.0472	--	<0.0472	<0.0472	--	--	--	0.58	--
Aroclor 1242	<0.0472	<0.0472	--	<0.0472	<0.0472	--	--	--	0.053	--
Aroclor 1248	<0.0472	<0.0472	--	<0.0472	<0.0472	--	--	--	0.081	--
Aroclor 1254	<0.0472	<0.0472	--	<0.0472	<0.0472	--	--	--	0.033	--
Aroclor 1260	<0.0472	<0.0472	--	<0.0472	0.0778 J	--	--	--	94	--
Total Polychlorinated Biphenyls	<0.0472	<0.0472	--	<0.0472	0.0778 J	--	--	--	0.014	0.006
Semi-Volatile Organic Compounds (µg/L)										
Acenaphthene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	<1.05	<0.0187	<0.0189	520	510
Acenaphthylene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	<0.105	<0.0187	<0.0189	--	--
Anthracene	<0.0190	<0.0192	<0.0187	<0.0190	0.0287 J	<0.210	<0.0187	<0.0189	13	>S
Benz(a)anthracene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	0.100 J	<0.0187	<0.0189	0.027	0.012
Benzo(a)pyrene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	0.0718	<0.0187	<0.0189	0.014	0.0034
Benzo(b)fluoranthene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	0.0595 J	<0.0187	<0.0189	--	0.034
Benzo(k)fluoranthene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	0.0268 J	<0.0187	<0.0189	--	0.34
Benzo(g,h,i)perylene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	0.0559	<0.0187	<0.0189	--	--
Chrysene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	0.133 J	<0.0187	<0.0189	--	>S
Dibenz(a,h)anthracene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	<0.0190	<0.0187	<0.0189	--	0.0034
Dibenzofuran	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	<0.267	<0.0187	<0.0189	3.7	--
Fluoranthene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	0.203	<0.0187	<0.0189	6.16	>S
Fluorene	<0.0190	<0.0192	<0.0187	<0.0190	0.0263 J	1.10	<0.0187	<0.0189	3.9	280
Indeno(1,2,3-cd)pyrene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	0.0329 J	<0.0187	<0.0189	--	0.034
1-Methylnaphthalene	<0.0381	<0.0385	<0.0374	<0.0381	<0.0374	2.65	<0.0374	<0.0377	2.1	--
2-Methylnaphthalene	<0.0381	<0.0385	<0.0374	<0.0381	<0.0374	0.209	<0.0374	<0.0377	--	--
Naphthalene	<0.0381	<0.0385	<0.0374	<0.0381	<0.0374	<0.286	<0.0374	<0.0377	620	0.17
Phenanthrene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	0.528	<0.0187	<0.0189	6.3	--
Pyrene	<0.0190	<0.0192	<0.0187	<0.0190	<0.0187	0.429	<0.0187	<0.0189	--	110

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:		MW-7		MW-8	MW-9	MW-10A	MW-11	MW-13	MW-14	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:		4/20/2017	4/20/2017 DUP	4/21/2017	4/20/2017	4/21/2017	4/20/2017	4/21/2017	4/21/2017		
Metals (µg/L)											
Arsenic	Total	2.09	2.14	5.23	0.744 J	0.756 J	2.21	<0.500	1.39	150	0.052
	Dissolved	1.01	1.11	4.38	0.556 J	<0.500	1.69	<0.500	<0.500		
Barium	Total	34.3	35.1	125	17.8	56.3	52.3	17.3	24.8	4.0	--
	Dissolved	29.7	29.5	116	15.4	32.1	46.1	16.6	17.6		
Cadmium	Total	<0.0400	0.0444 J	0.156 J	0.178 J	0.189 J	0.0444 J	<0.0400	0.267	2.2	20
	Dissolved	<0.0400	<0.0400	0.144 J	0.189 J	0.0556 J	<0.0400	0.0444 J	<0.0400		
Chromium	Total	0.689 J	0.744 J	1.34	0.989 J	3.77	2.02	<0.500	0.633 J	74	30,000
	Dissolved	0.733 J	0.833 J	2.37	0.644 J	0.611 J	1.23	<0.500	0.567 J		
Lead	Total	<0.100	<0.100	0.244	0.978	3.00	6.34	<0.100	0.522	2.5	15
	Dissolved	<0.100	<0.100	<0.100	0.578	0.167 J	3.20	<0.100	<0.100		
Mercury	Total	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	0.77	6.0
	Dissolved	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400		
Selenium	Total	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	5.0	--
	Dissolved	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500		
Silver	Total	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.12	100
	Dissolved	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100		

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:	B-A-GW	B-D-GW	B-I-GW		B-J-GW	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:	9/27/2017	9/27/2017	9/28/2017	9/28/2017 DUP	9/28/2017		
Total Petroleum Hydrocarbons (µg/L)							
Diesel	<189	<190	<189	--	<187	--	100
Oil	<377	<381	<377	--	<374	--	300
Volatile Organic Compounds (µg/L)							
Acetone	<20.0	<20.0	<20.0	<20.0	<20.0	1500	--
Acrylonitrile	<2.00	<2.00	<2.00	<2.00	<2.00	2600	0.052
Benzene	<0.200	<0.200	<0.200	<0.200	<0.200	130	0.46
Bromobenzene	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
Bromochloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
Bromodichloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	--	0.13
Bromoform	<1.00	<1.00	<1.00	<1.00	<1.00	320	3.3
Bromomethane	<5.00	<5.00	<5.00	<5.00	<5.00	--	7.5
2-Butanone (MEK)	<10.0	<10.0	<10.0	<10.0	<10.0	14000	--
n-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
sec-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
tert-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
Carbon disulfide	<10.0	<10.0	<10.0	<10.0	<10.0	0.92	--
Carbon tetrachloride	<1.00	<1.00	<1.00	<1.00	<1.00	74	0.46
Chlorobenzene	<0.500	<0.500	<0.500	<0.500	<0.500	50	77
Chloroethane	<10.0	<10.0	<10.0	<10.0	<10.0	--	21000
Chloroform	<1.00	<1.00	<1.00	<1.00	<1.00	1240	0.22
Chloromethane	<5.00	<5.00	<5.00	<5.00	<5.00	--	190
2-Chlorotoluene	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
4-Chlorotoluene	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
1,2-Dibromo-3-chloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
Dibromochloromethane	<5.00	<5.00	<5.00	<5.00	<5.00	--	0.17
1,2-Dibromoethane (EDB)	<0.500	<0.500	<0.500	<0.500	<0.500	--	0.0075
Dibromomethane	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
1,2-Dichlorobenzene	<0.500	<0.500	<0.500	<0.500	<0.500	14	300
1,3-Dichlorobenzene	<0.500	<0.500	<0.500	<0.500	<0.500	71	--
1,4-Dichlorobenzene	<0.500	<0.500	<0.500	<0.500	<0.500	15	0.48
Dichlorodifluoromethane	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
1,1-Dichloroethane	<0.500	<0.500	<0.500	<0.500	<0.500	47	2.8
1,2-Dichloroethane (EDC)	<0.500	<0.500	<0.500	<0.500	<0.500	20000	0.17
1,1-Dichloroethene	<0.500	<0.500	<0.500	<0.500	<0.500	25	280

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:	B-A-GW	B-D-GW	B-I-GW		B-J-GW	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:	9/27/2017	9/27/2017	9/28/2017	9/28/2017 DUP	9/28/2017		
Volatile Organic Compounds (µg/L)							
cis-1,2-Dichloroethene	<0.500	<0.500	<0.500	<0.500	<0.500	590	36
trans-1,2-Dichloroethene	<0.500	<0.500	<0.500	<0.500	<0.500	590	360
1,2-Dichloropropane	<0.500	<0.500	<0.500	<0.500	<0.500	5700	--
1,3-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
2,2-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
1,1-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
cis-1,3-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00 UJ	--	--
trans-1,3-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
Ethylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	7.3	1.5
Hexachlorobutadiene	<5.00	<5.00	<5.00	<5.00	<5.00	9.3	--
2-Hexanone	<10.0	<10.0	<10.0	<10.0	<10.0	99	--
Isopropylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	--	440
4-Isopropyltoluene	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
Methylene chloride	<3.00	<3.00	<3.00	<3.00	<3.00	2200	11
4-Methyl-2-pentanone (MiBK)	<10.0	<10.0	<10.0	<10.0	<10.0	170	--
Methyl tert-butyl ether (MTBE)	<1.00	<1.00	<1.00	<1.00	<1.00	--	14
Naphthalene	<2.00	<2.00	<2.00	<2.00	<2.00	620	0.17
n-Propylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	--	--
Styrene	<1.00	<1.00	<1.00	<1.00	<1.00	--	1200
1,1,1,2-Tetrachloroethane	<0.500	<0.500	<0.500	<0.500	<0.500	186	--
1,1,2,2-Tetrachloroethane	<0.500	<0.500	<0.500	<0.500	<0.500	2400	--
Tetrachloroethene (PCE)	<0.500	<0.500	<0.500	<0.500	<0.500	840	12
Toluene	<1.00	<1.00	<1.00	<1.00	<1.00	9.8	1100
1,2,3-Trichlorobenzene	<2.00	<2.00	<2.00	<2.00	<2.00	--	--
1,2,4-Trichlorobenzene	<2.00	<2.00	<2.00	<2.00	<2.00	110	--
1,1,1-Trichloroethane	<0.500	<0.500	<0.500	<0.500	<0.500	11	8000
1,1,2-Trichloroethane	<0.500	<0.500	<0.500	<0.500	<0.500	9400	0.28
Trichloroethene (TCE)	<0.500	<0.500	<0.500	<0.500	<0.500	21900	0.49
Trichlorofluoromethane	<2.00	<2.00	<2.00	<2.00	<2.00	--	1100
1,2,3-Trichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	--	--
1,2,4-Trimethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	--	15
1,3,5-Trimethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	--	110

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:	B-A-GW	B-D-GW	B-I-GW		B-J-GW	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:	9/27/2017	9/27/2017	9/28/2017	9/28/2017 DUP	9/28/2017		
Volatile Organic Compounds (µg/L)							
Vinyl chloride	<0.400	<0.400	<0.400	<0.400	<0.400	--	0.027
m,p-Xylene	<1.00	<1.00	<1.00	<1.00	<1.00	13	190
o-Xylene	<0.500	<0.500	<0.500	<0.500	<0.500		
Polychlorinated Biphenyls (µg/L)							
Aroclor 1016	--	--	<0.0943	--	<0.0943	--	--
Aroclor 1221	--	--	<0.0943	--	<0.0943	0.28	--
Aroclor 1232	--	--	<0.0943	--	<0.0943	0.58	--
Aroclor 1242	--	--	<0.0943	--	<0.0943	0.053	--
Aroclor 1248	--	--	<0.0943	--	<0.0943	0.081	--
Aroclor 1254	--	--	<0.0943	--	<0.0943	0.033	--
Aroclor 1260	--	--	<0.0943	--	<0.0943	94	--
Total Polychlorinated Biphenyls	--	--	<0.0943	--	<0.0943	0.014	0.006
Semi-Volatile Organic Compounds (µg/L)							
Acenaphthene	--	--	<0.0377	--	<0.0381	520	510
Acenaphthylene	--	--	<0.0377	--	<0.0381	--	--
Anthracene	--	--	<0.0377	--	<0.0381	13	>S
Benz(a)anthracene	--	--	<0.0377	--	<0.0381	0.027	0.012
Benzo(a)pyrene	--	--	<0.0377	--	<0.0381	0.014	0.0034
Benzo(b)fluoranthene	--	--	<0.0377	--	<0.0381	--	0.034
Benzo(k)fluoranthene	--	--	<0.0377	--	<0.0381	--	0.34
Benzo(g,h,i)perylene	--	--	<0.0377	--	<0.0381	--	--
Chrysene	--	--	<0.0377	--	<0.0381	--	>S
Dibenz(a,h)anthracene	--	--	<0.0377	--	<0.0381	--	0.0034
Dibenzofuran	--	--	<0.0377	--	<0.0381	3.7	--
Fluoranthene	--	--	<0.0377	--	<0.0381	6.16	>S
Fluorene	--	--	<0.0377	--	<0.0381	3.9	280
Indeno(1,2,3-cd)pyrene	--	--	<0.0377	--	<0.0381	--	0.034
1-Methylnaphthalene	--	--	<0.0755	--	<0.0762	2.1	--
2-Methylnaphthalene	--	--	<0.0755	--	<0.0762	--	--
Naphthalene	--	--	<0.0755	--	<0.0762	620	0.17
Phenanthrene	--	--	<0.0377	--	<0.0381	6.3	--
Pyrene	--	--	<0.0377	--	<0.0381	--	110

See notes at the end of table.

Table 4
Groundwater Analytical Results – TPH, VOCs, PCBs, and Metals
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:		B-A-GW	B-D-GW	B-I-GW		B-J-GW	DEQ SLVs in Surface Water for Aquatic Life	Ingestion and Inhalation Residential
Sample Date:		9/27/2017	9/27/2017	9/28/2017	9/28/2017 DUP	9/28/2017		
Metals (µg/L)								
Arsenic	Total	--	--	7.82	--	7.22	150	0.052
	Dissolved	--	--	6.97	--	1.81		
Barium	Total	--	--	52.6	--	83.5	4.0	--
	Dissolved	--	--	32.9	--	18.5		
Cadmium	Total	--	--	0.100 J	--	0.711	2.2	20
	Dissolved	--	--	<0.200	--	0.0667 J		
Chromium	Total	--	--	3.04	--	11.0	74	30,000
	Dissolved	--	--	0.733 J	--	1.03		
Lead	Total	--	--	1.82	--	11.7	2.5	15
	Dissolved	--	--	0.189 J	--	1.26		
Mercury	Total	--	--	<0.0800	--	<0.0800	0.77	6.0
	Dissolved	--	--	<0.0800	--	<0.0800		
Selenium	Total	--	--	<1.00	--	<1.00	5.0	--
	Dissolved	--	--	<1.00	--	<1.00		
Silver	Total	--	--	<0.200	--	<0.200	0.12	100
	Dissolved	--	--	<0.200	--	<0.200		

Notes:

1. µg/L = Microgram per liter (ppb [parts per billion]).
2. Bold values indicate the constituent was detected above laboratory detection limits.
3. < = Constituent not detected at or above laboratory reporting limit shown.
4. Shading indicates concentration of analyte was detected above at least one applicable risk-based human health screening level.
5. Bold Box cells indicate concentration of analyte was detected above the DEQ Guidance for Ecological Risk Assessment Level II Screening Level Values (Surface Water, Aquatic)
6. Screening level values for Ecological Risk Assessment from DEQ Level II Guidance (Surface Water, Aquatic).
7. Screening level values for human health from DEQ Risk-Based Concentrations (November 1, 2015 revision).
8. -- = Value not available.
9. J = Reported concentration is an estimated value.
10. >S = This groundwater RBC exceeds the solubility limit. Refer to Appendix D for the corresponding value of S. Groundwater concentrations in excess of S indicate that free product may be present. See Section B.2.1.4 for additional information.
11. UJ = Result is estimated and not detected at the specified reporting limit.

Table 5
Groundwater Elevations
Fire Training Facilities
Portland International Airport
Portland, Oregon

Monitoring Well (Elevation in Feet MSL)[1]	Sampling Date	Depth to Water	Depth to Product (feet)	Product Thickness (feet)	Groundwater Elevations (feet)
MW-1	04/26/94	7.55	--	--	10.06
(17.61)	08/08/94	8.76	--	--	8.85
	11/08/94	6.76	--	--	10.85
	02/20/95	5.26	--	--	12.35
	05/12/95	6.61	--	--	11.00
	09/18/95	8.73	--	--	8.88
	12/28/95	6.27	--	--	11.34
	02/29/96	5.39	--	--	12.22
	04/23/96	6.09	--	--	11.52
	05/30/96	6.10	--	--	11.51
	06/25/96	6.90	--	--	10.71
	12/11/96	6.37	--	--	11.24
	04/11/97	7.15	--	--	10.46
	10/27/97	8.39	--	--	9.22
	04/23/98	8.23	--	--	9.38
	04/06/99	7.38	--	--	10.23
	04/28/00	7.89	--	--	9.72
	05/07/01	8.86	--	--	8.75
	05/31/02	8.23	--	--	9.38
	06/04/03	7.98	--	--	9.63
	05/21/04	8.67	--	--	8.94
	08/25/05	9.62	--	--	7.99
	08/10/06	9.15	--	--	8.46
	09/06/07	9.65	--	--	7.96
	04/20/17	6.81	--	--	10.80
	09/26/17	9.24	--	--	8.37
MW-2	04/26/94	9.23	--	--	8.61
(17.84)	08/08/94	9.83	--	--	8.01
	11/08/94	9.11	--	--	8.73
	02/20/95	8.38	--	--	9.46
	05/12/95	9.06	--	--	8.78
	09/18/95	9.77	--	--	8.07
	12/28/95	8.82	--	--	9.02
	02/29/96	7.83	--	--	10.01
	04/23/96	8.57	--	--	9.27
	05/30/96	8.51	--	--	9.33
	06/25/96	8.82	--	--	9.02
	12/11/96	9.17	--	--	8.67
	04/11/97	9.69	--	--	8.15
	10/27/97	10.27	--	--	7.57
	04/23/98	9.50	--	--	8.34
	04/06/99	9.57	--	--	8.27
	04/28/00	9.76	--	--	8.08
	05/07/01	10.79	--	--	7.05
	05/31/02	10.08	--	--	7.76
	06/04/03	10.04	--	--	7.80
	05/21/04	10.43	--	--	7.41
	08/25/05	10.86	--	--	6.98
	08/10/06	10.44	--	--	7.40
	09/06/07	10.74	--	--	7.10
	04/20/17	9.08	--	--	8.76
	09/26/17	10.60	--	--	7.24

Please refer to notes at end of table.

Table 5
Groundwater Elevations
Fire Training Facilities
Portland International Airport
Portland, Oregon

Monitoring Well (Elevation in Feet MSL)[1]	Sampling Date	Depth to Water	Depth to Product (feet)	Product Thickness (feet)	Groundwater Elevations (feet)
MW-3	04/26/94	6.77	--	--	10.82
(17.59)	08/08/94	8.50	--	--	9.09
	11/08/94	3.93	--	--	13.66
	02/20/95	3.74	--	--	13.85
	05/12/95	5.08	--	--	12.51
	09/18/95	6.91	--	--	10.68
	12/28/95	4.30	--	--	13.29
	02/29/96	3.41	--	--	14.18
	04/23/96	4.89	--	--	12.70
	05/30/96	4.76	--	--	12.83
	06/25/96	5.42	--	--	12.17
	12/11/96	3.96	--	--	13.63
	04/11/97	6.15	--	--	11.44
	10/27/97	7.95	--	--	9.64
	04/23/98	6.79	--	--	10.80
	04/06/99	6.07	--	--	11.52
	04/28/00	6.56	--	--	11.03
	05/07/01	7.61	--	--	9.98
	05/31/02	7.8	--	--	9.79
	06/04/03	6.82	--	--	10.77
	05/21/04	8.25	--	--	9.34
	08/25/05	9.42	--	--	8.17
	08/10/06	8.85	--	--	8.74
	09/06/07	9.59	--	--	8.00
	04/20/17	6.70	--	--	10.89
	09/26/17	Not measured; unable to remove well cover.			
MW-4	04/26/94	8.14	--	--	9.86
(18.00)	08/08/94	9.26	--	--	8.74
	11/08/94	6.58	--	--	11.42
	02/20/95	5.63	--	--	12.37
	05/12/95	7.57	--	--	10.43
	09/18/95	9.24	--	--	8.76
	12/28/95	6.55	--	--	11.45
	02/29/96	5.94	--	--	12.06
	04/23/96	7.05	--	--	10.95
	05/30/96	6.89	--	--	11.11
	06/25/96	7.92	--	--	10.08
	12/11/96	5.58	--	--	12.42
	04/11/97	7.26	--	--	10.74
	10/27/97	8.00	--	--	10.00
	04/23/98	7.95	--	--	10.05
	04/06/99	7.30	--	--	10.70
	04/28/00	7.67	--	--	10.33
	05/07/01	8.29	--	--	9.71
	05/31/02	8.21	--	--	9.79
	06/04/03	7.79	--	--	10.21
	05/21/04	8.48	--	--	9.52
	08/25/05	9.28	--	--	8.72
	08/10/06	8.77	--	--	9.23
	09/06/07	9.44	--	--	8.56
	04/20/17	7.08	--	--	10.92
	09/26/17	9.52	--	--	8.48

Please refer to notes at end of table.

Table 5
Groundwater Elevations
Fire Training Facilities
Portland International Airport
Portland, Oregon

Monitoring Well (Elevation in Feet MSL)[1]	Sampling Date	Depth to Water	Depth to Product (feet)	Product Thickness (feet)	Groundwater Elevations (feet)
MW-5	04/26/94	11.19	--	--	8.69
(19.88)	08/08/94	11.72	--	--	8.16
	11/08/94	9.96	--	--	9.92
	02/20/95	7.67	--	--	12.21
	05/12/95	10.71	--	--	9.17
	09/18/95	11.69	--	--	8.19
	12/28/95	9.16	--	--	10.72
	02/29/96	8.61	--	--	11.27
	04/23/96	10.15	--	--	9.73
	05/30/96	10.13	--	--	9.75
	06/25/96	10.77	--	--	9.11
	12/11/96	8.96	--	--	10.92
	04/11/97	8.46	--	--	11.42
	10/27/97	10.17	--	--	9.71
	04/23/98	9.84	--	--	10.04
	04/06/99	9.29	--	--	10.59
	04/28/00	9.62	--	--	10.26
	05/07/01	10.19	--	--	9.69
	05/31/02	9.88	--	--	10.00
	06/04/03	9.58	--	--	10.30
	05/21/04	10.13	--	--	9.75
	08/25/05	10.74	--	--	9.14
	08/10/06	10.31	--	--	9.57
	09/06/07	10.69	--	--	9.19
	04/20/17	10.65	--	--	9.23
	09/26/17	11.12	--	--	8.76
MW-6	04/26/94	8.36	--	--	9.72
(18.08)	08/08/94	9.21	--	--	8.87
	11/08/94	7.11	--	--	10.97
	02/20/95	5.04	--	--	13.04
	05/12/95	7.07	--	--	11.01
	09/18/95	9.15	--	--	8.93
	12/28/95	6.71	--	--	11.37
	02/29/96	5.65	--	--	12.43
	04/23/96	6.76	--	--	11.32
	05/30/96	6.58	--	--	11.50
	06/25/96	7.83	--	--	10.25
	12/11/96	5.97	--	--	12.11
	04/11/97	7.00	--	--	11.08
	10/27/97	8.48	--	--	9.60
	04/23/98	7.66	--	--	10.42
	04/06/99	6.70	--	--	11.38
	04/28/00	8.54	--	--	9.54
	05/07/01	8.99	--	--	9.09
	05/31/02	8.51	--	--	9.57
	06/04/03	8.22	--	--	9.86
	05/21/04	8.98	--	--	9.10
	08/25/05	9.68	--	--	8.40
	08/10/06	9.22	--	--	8.86
	09/06/07	9.82	--	--	8.26
	04/20/17	5.80	--	--	12.28
	09/26/17	8.93	--	--	9.15

Please refer to notes at end of table.

Table 5
Groundwater Elevations
Fire Training Facilities
Portland International Airport
Portland, Oregon

Monitoring Well (Elevation in Feet MSL)[1]	Sampling Date	Depth to Water	Depth to Product (feet)	Product Thickness (feet)	Groundwater Elevations (feet)
MW-7	04/26/94	8.97	--	--	8.64
(17.61)	08/08/94	9.76	--	--	7.85
	11/08/94	8.21	--	--	9.40
	02/20/95	7.14	--	--	10.47
	05/12/95	8.43	--	--	9.18
	09/18/95	9.54	--	--	8.07
	12/28/95	7.93	--	--	9.68
	02/29/96	7.62	--	--	9.99
	04/23/96	8.19	--	--	9.42
	05/30/96	8.23	--	--	9.38
	06/25/96	8.70	--	--	8.91
	12/11/96	8.00	--	--	9.61
	04/11/97	9.41	--	--	8.20
	10/27/97	9.68	--	--	7.93
	04/23/98	9.75	--	--	7.86
	04/06/99	9.48	--	--	8.13
	04/28/00	9.69	--	--	7.92
	05/07/01	10.06	--	--	7.55
	05/31/02	10.01	--	--	7.60
	06/04/03	9.61	--	--	8.00
	05/21/04	9.74	--	--	7.87
	08/25/05	10.58	--	--	7.03
	08/10/06	10.35	--	--	7.26
	09/06/07	10.86	--	--	6.75
	04/20/17	8.98	--	--	8.63
	09/26/17	10.78	--	--	6.83
MW-8	04/26/94	9.47	--	--	8.68
(18.15)	08/08/94	9.99	--	--	8.16
	11/08/94	9.56	--	--	8.59
	02/20/95	7.91	--	--	10.24
	05/12/95	8.41	--	--	9.74
	09/18/95	9.96	--	--	8.19
	12/28/95	7.98	--	--	10.17
	02/29/96	6.82	--	--	11.33
	04/23/96	7.40	--	--	10.75
	05/30/96	7.23	--	--	10.92
	06/25/96	7.82	--	--	10.33
	12/11/96	6.97	--	--	11.18
	04/11/97	7.90	--	--	10.25
	10/27/97	9.39	--	--	8.76
	04/23/98	8.97	--	--	9.18
	04/06/99	7.70	--	--	10.45
	04/28/00	7.95	--	--	10.20
	05/07/01	9.60	--	--	8.55
	05/31/02	8.49	--	--	9.66
	06/04/03	8.11	--	--	10.04
	05/21/04	9.05	--	--	9.10
	08/25/05	9.96	--	--	8.19
	08/10/06	9.53	--	--	8.62
	09/06/07	10.15	--	--	8.00
	04/20/17	7.18	--	--	10.97
	09/26/17	9.72	--	--	8.43

Please refer to notes at end of table.

Table 5
Groundwater Elevations
Fire Training Facilities
Portland International Airport
Portland, Oregon

Monitoring Well (Elevation in Feet MSL)[1]	Sampling Date	Depth to Water	Depth to Product (feet)	Product Thickness (feet)	Groundwater Elevations (feet)
MW-9	08/08/94	6.70	--	--	10.39
(17.07)	11/08/94	4.11	--	--	12.98
	02/20/95	2.93	--	--	14.16
	05/12/95	4.95	--	--	12.14
	09/18/95	6.34	--	--	10.75
	12/28/95	4.02	--	--	13.07
	02/29/96	3.61	--	--	13.48
	04/23/96	3.88	--	--	13.21
	05/30/96	4.19	--	--	12.90
	06/25/96	4.87	--	--	12.20
	12/11/96	2.77	--	--	14.30
	04/11/97	4.25	--	--	12.82
	10/27/97	5.40	--	--	11.67
	04/23/98	4.74	--	--	12.33
	04/06/99	4.26	--	--	12.81
	04/28/00	4.62	--	--	12.45
	05/07/01	5.06	--	--	12.01
	05/31/02	5.03	--	--	12.04
	06/04/03	4.83	--	--	12.24
	05/21/04	5.32	--	--	11.75
	08/25/05	5.98	--	--	11.09
	08/10/06	5.72	--	--	11.35
	09/06/07	6.33	--	--	10.74
	04/20/17	4.76	--	--	12.31
	09/26/17	8.13	--	--	8.94
MW-10A	02/29/96	3.69	--	--	13.55
(17.24)	04/23/96	4.41	--	--	12.83
	05/30/96	4.58	--	--	12.66
	06/25/96	5.12	--	--	12.12
	12/11/96	3.41	--	--	13.83
	04/11/97	5.71	--	--	11.53
	10/27/97	5.30	--	--	11.94
	04/23/98	5.07	--	--	12.17
	04/06/99	4.58	--	--	12.66
	04/28/00	5.09	--	--	12.15
	05/07/01	5.22	--	--	12.02
	05/31/02	5.24	--	--	12.00
	06/04/03	5.27	--	--	11.97
	05/21/04	5.66	--	--	11.58
	08/25/05	6.28	--	--	10.96
	08/10/06	6.06	--	--	11.18
	09/06/07	6.54	--	--	10.70
	04/20/17	4.96	--	--	12.28
	09/26/17	7.21	--	--	10.03

Please refer to notes at end of table.

Table 5
Groundwater Elevations
Fire Training Facilities
Portland International Airport
Portland, Oregon

Monitoring Well (Elevation in Feet MSL)[1]	Sampling Date	Depth to Water	Depth to Product (feet)	Product Thickness (feet)	Groundwater Elevations (feet)
MW-11	02/29/96	4.51	--	--	12.84
(17.35)	04/23/96	4.88	--	--	12.47
	05/30/96	5.00	--	--	12.35
	06/25/96	5.41	--	--	11.94
	12/11/96	4.00	--	--	13.35
	04/11/97	5.18	--	--	12.17
	10/27/97	5.72	--	--	11.63
	04/23/98	5.47	--	--	11.88
	04/06/99	5.11	--	--	12.24
	04/28/00	5.48	--	--	11.87
	05/07/01	5.50	--	--	11.85
	05/31/02	5.64	--	--	11.71
	06/04/03	5.55	--	--	11.80
	05/21/04	5.77	--	--	11.58
	08/25/05	6.22	--	--	11.13
	08/10/06	6.13	--	--	11.22
	09/06/07	6.55	--	--	10.80
	04/20/17	5.33	--	--	12.02
	09/26/17	8.95	8.85	0.10	8.48
MW-12	02/29/96	7.04	--	--	12.67
(19.71)	04/23/96	9.35	--	--	10.36
	05/30/96	9.37	--	--	10.34
	06/25/96	10.32	--	--	9.39
	12/11/96	5.91	--	--	13.80
	04/11/97	7.22	7.14	0.08	12.56
	10/27/97	10.11	9.83	0.28	9.84
	04/23/98	8.99	8.96	0.03	10.75
	04/06/99	7.38	--	--	12.33
	04/28/00	8.90	--	--	10.81
	05/07/01	9.62	--	--	10.09
	05/31/02	9.18	--	--	10.53
	06/04/03	8.47	--	--	11.24
	05/21/04	8.96	--	--	10.75
	08/25/05	10.63	--	--	9.08
	08/10/06	10.11	--	--	9.60
	09/06/07	10.68	--	--	9.03
	04/20/17	6.59	6.44	0.15	13.24
	09/26/17	10.52	10.40	0.12	9.29
MW-13	02/29/96	2.85	--	--	15.68
(18.53)	04/23/96	3.43	--	--	15.10
	05/30/96	4.05	--	--	14.48
	06/25/96	4.82	--	--	13.71
	12/11/96	1.76	--	--	16.77
	04/11/97	3.98	--	--	14.55
	10/27/97	4.94	--	--	13.59
	04/23/98	4.50	--	--	14.03
	04/06/99	3.82	--	--	14.71
	04/28/00	4.63	--	--	13.90
	05/07/01	5.03	--	--	13.50
	05/31/02	5.15	--	--	13.38
	06/30/03	4.80	--	--	13.73
	05/21/04	5.27	--	--	13.26
	08/25/05	5.85	--	--	12.68
	08/10/06	5.55	--	--	12.98
	09/06/07	6.02	--	--	12.51
	04/20/17	3.30	--	--	15.23
	09/26/17	5.49	--	--	13.04

Please refer to notes at end of table.

Table 5
Groundwater Elevations
Fire Training Facilities
Portland International Airport
Portland, Oregon

Monitoring Well (Elevation in Feet MSL)[1]	Sampling Date	Depth to Water	Depth to Product (feet)	Product Thickness (feet)	Groundwater Elevations (feet)
MW-14	02/29/96	2.27	--	--	15.46
(17.73)	04/23/96	2.90	--	--	14.83
	05/30/96	3.36	--	--	14.37
	06/25/96	3.92	--	--	13.81
	12/11/96	1.47	--	--	16.26
	04/11/97	3.30	--	--	14.43
	10/27/97	4.38	--	--	13.35
	04/23/98	3.82	--	--	13.91
	04/06/99	3.09	--	--	14.64
	04/28/00	3.80	--	--	13.93
	05/07/01	4.02	--	--	13.71
	05/31/02	4.28	--	--	13.45
	06/04/03	3.94	--	--	13.79
	05/21/04	4.38	--	--	13.35
	08/25/05	4.98	--	--	12.75
	08/10/06	4.61	--	--	13.12
	09/06/07	5.05	--	--	12.68
	04/20/17	2.51	--	--	15.22
	09/26/17	4.60	--	--	13.13

Notes:
1. feet MSL = Feet above mean sea level.
2. Casing elevations and groundwater data prior to December 1996 are from a Draft Quarterly Groundwater Monitoring Report dated December 12, 1996, and prepared by Geraghty & Miller.
3. Groundwater data prior to August 2005 were identified from previous report tables and could not be verified by field logs.
4. NM = Water level not measured.
5. -- = No product.
6. Elevation was corrected in wells with the presence of measurable separate-phase petroleum hydrocarbons using the following equation and assuming a specific gravity for gasoline product of 0.8 gram per cubic centimeter (Merck, 1989):

$$h_w = \frac{p_g\, h_g}{p_w}$$

water-level elevation = top of casing elevation + $[h_w - d_w]$

where:

h_w = depth to groundwater correction
d_w = depth to groundwater measuring point
p_g = density of separate-phase hydrocarbons
p_w = density of water
h_g = product thickness

Reference: Merck Index 1989, An Encyclopedia of Chemicals, Drugs and Biologicals, Merck and Company, Rahway, New Jersey.

Table 6
Total Oxidizable Precursor Assay Analytical Results
Fire Training Facilities
Portland International Airport
Portland, Oregon

Sample Identification:		MW-4			
Sample Date:		9/26/2017			
		Pre-Treatment	Post-Treatment	Treatment Difference	Percent Increase (%)
		Concentrations in ng/L			
PFBS	Perfluorobutanesulfonic acid (C4)	5,600	6,000	--	--
PFBA	Perfluorobutanoic acid (C4)	9,200	35,000	26,000	380
PFPeA	Perfluoropentanoic acid (C5)	28,000	59,000	31,000	211
PFHxA	Perfluorohexanoic acid (C6)	36,000	64,000	28,000	178
PFHxS	Perfluorohexanesulfonoic acid (C6)	24,000	24,000	--	--
PFHpA	Perfluoroheptanoic acid (C7)	9,500	13,000	3,800	137
PFHpS	Perfluoroheptanesulfonic acid (C7)	1,400	1,300	--	--
PFOA	Perfluorooctanoic acid (C8)	10,000	10,000	70	<1
PFOS	Perfluorooctanesulfonic acid (C8)	92,000	86,000	--	--
PFNA	Perfluorononaoic acid (C9)	<500	<500	--	--
PFDA	Perfluorodecanoic acid (C10)	<500	<500	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	<500	<500	--	--
PFUnA	Perfluoroundecanoic acid (C11)	<500	<500	--	--
PFDoA	Perfluorododecanoic acid (C12)	<500	<500	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	<500	<500	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	<500	<500	--	--
FOSA	Perfluorooctane sulfonamide (C8)	<4,000	<4,000	--	--
8:2 FTS	8:2 Fluorotelomer sulfonate	<5,000	<5,000	--	--
6:2 FTS	6:2 Fluorotelomer sulfonate	160,000	<5,000	--	--
Total PFCA		93,000	180,000	88,000	194

Notes:
1. ng/L = Nanogram per liter (ppt [parts per trillion]).
2. Bold values indicate the compounds was detected above laboratory reporting limits.
3. < = Compound not detected at or above laboratory reporting limit shown.
4. -- = Value not available.
5. PFCA = Perfluoroalkyl carboxylic acids.

Table 7
Stormwater and Surface Water Analytical Results – PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

	Sample Identification:	MH-1	MH-2	OF1N-NW	SW-1	SW-2	SW-3	Risk-Based Screening Level	
	Sample Date:	8/29/2017	8/29/2017	8/29/2017	8/29/2017	9/27/2017	9/27/2017	Construction Worker	Aquatic Organisms - Chronic
Concentrations in ng/L									
PFBS	Perfluorobutanesulfonic acid (C4)	86.3	5.06	33.6	111	11.3	8.51	--	--
PFHxA	Perfluorohexanoic acid (C6)	1,170 H	304 H	357 H	450 H	97.6	63.1	--	--
PFHxS	Perfluorohexanesulfonoic acid (C6)	852 H	21.5 H	352 H	2,180 H	113	54	--	--
PFHpA	Perfluoroheptanoic acid (C7)	425	174	132	351	47	27	--	--
PFOA	Perfluorooctanoic acid (C8)	1,220	175	441	1,110	131	76.8	220	880,000
PFOS	Perfluorooctanesulfonic acid (C8)	6,610 H	28.0 H	2,650 H	14,500 H	545	323	5,300	140,000
PFNA	Perfluorononaoic acid (C9)	118	13.6	39.6	482	21.4	12.6	--	--
PFDA	Perfluorodecanoic acid (C10)	9.95	<2.32	<2.17	10.3	3.96	3.5	--	--
PFUnA	Perfluoroundecanoic acid (C11)	<2.16	<2.32	<2.17	<2.23	1.78	<1.08	--	--
PFDoA	Perfluorododecanoic acid (C12)	<2.16	<2.32	<2.17	<2.23	<1.07	<1.08	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	<2.16	<2.32	<2.17	<2.23	<1.07	<1.08	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	<2.16	<2.32	<2.17	<2.23	<1.07	<1.08	--	--
MeFOSAA	Methyl perfluorooctanesulfonamidoacetic acid (C8)	<2.16	<2.32	<2.17	<2.23	<1.07	<1.08	--	--
EtFOSAA	Ethyl perfluorooctanesulfonamidoacetic acid (C8)	<2.16	<2.32	<2.17	<2.23	<1.07	<1.08	--	--

Notes:

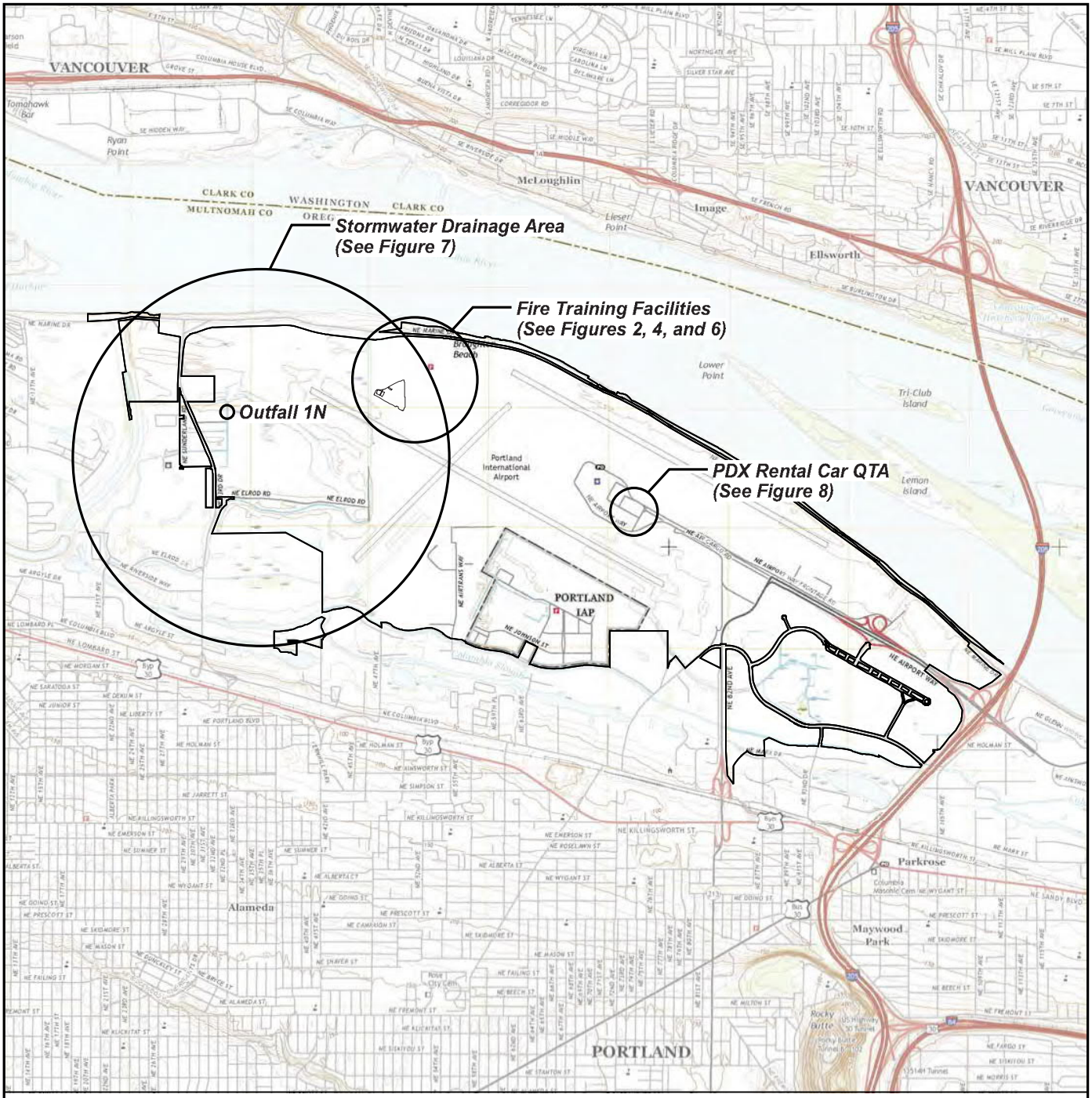
1. ng/L = Nanogram per liter (ppt [parts per trillion]).
2. Bold values indicate the compounds was detected above laboratory reporting limits.
3. < = Compound not detected at or above laboratory reporting limit shown.
4. H = Sample was extracted outside of the EPA 537 recommended holding time of 14 days.
5. Screening levels from State of Maine (Construction Worker) and State of Michigan (Aquatic Organisms). See Table A-5.
6. Shading indicates concentration of analyte exceeded the screening level for construction worker.
7. -- = Value not available.

Table 8
Sediment Analytical Results – PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

	Sample Identification:	OF-1N Mix	Risk-Based
	Sample Date:	9/27/2017	Screening Level
Concentrations in ng/kg			
PFBS	Perfluorobutanesulfonic acid (C4)	<2,050	--
PFHxS	Perfluorohexanesulfonoic acid (C6)	<2,050	--
PFHxA	Perfluorohexanoic acid (C6)	<2,050	--
PFHpA	Perfluoroheptanoic acid (C7)	<2,050	--
PFOA	Perfluorooctanoic acid (C8)	<2,050	--
PFOS	Perfluorooctanesulfonic acid (C8)	<2,050	--
PFNA	Perfluorononaoic acid (C9)	<2,050	--
PFDA	Perfluorodecanoic acid (C10)	<2,050	--
PFUnA	Perfluoroundecanoic acid (C11)	<2,050	--
PFDoA	Perfluorododecanoic acid (C12)	<2,050	--
PFTrDA	Perfluorotridecanoic acid (C13)	<2,050	--
PFTeDA	Perfluorotetradecanoic acid (C14)	<2,050	--
MeFOSAA	Methyl perfluorooctanesulfonamidoacetic acid (C8)	<2,050	--
EtFOSAA	Ethyl perfluorooctanesulfonamidoacetic acid (C8)	<2,050	--

Notes:

1. ng/kg = Nanogram per kilogram (ppt [parts per trillion]).
2. Bold values indicate the compounds was detected above laboratory reporting limits.
3. < = Compound not detected at or above laboratory reporting limit shown.
4. -- = No screening levels identified for construction worker or ecological receptors.



Note: Base map prepared from USGS 7.5-minute quadrangle of Portland and Mount Tabor, WA-OR, dated 2017 as provided by USGS.gov.

0 4,000 8,000

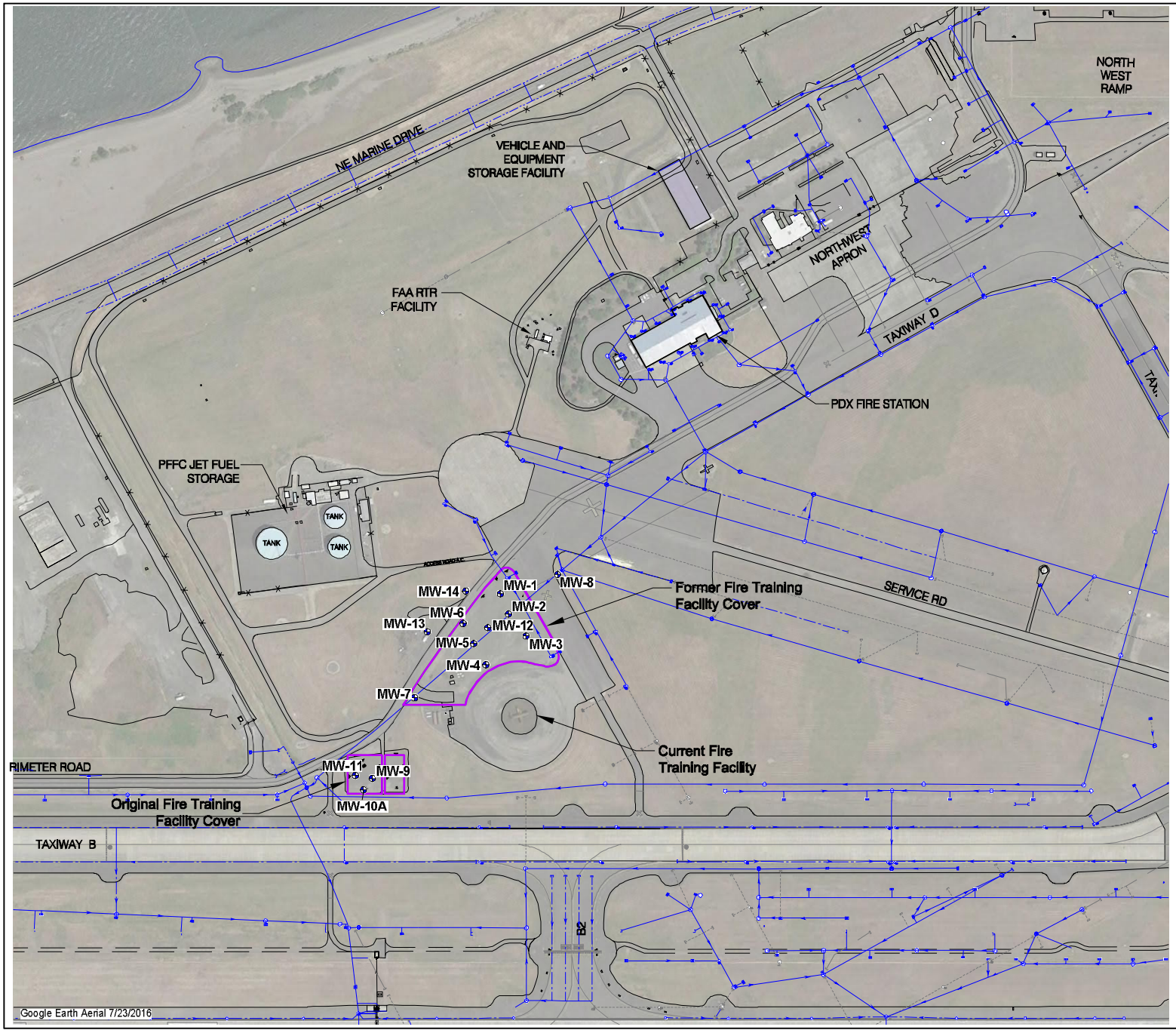
Approximate Scale in Feet

N

Site Location Map

Fire Training Facilities Investigation
Port of Portland
Portland, Oregon

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1264-03	Figure 1
	November 2017		



Legend:

- MW-1 — Monitoring Well Location
- Underground Storm Sewer Pipeline
- Abandoned Storm Sewer Pipeline
- Catch Basin
- Manhole
- Gravel Protective Cap Boundary

0 300 600

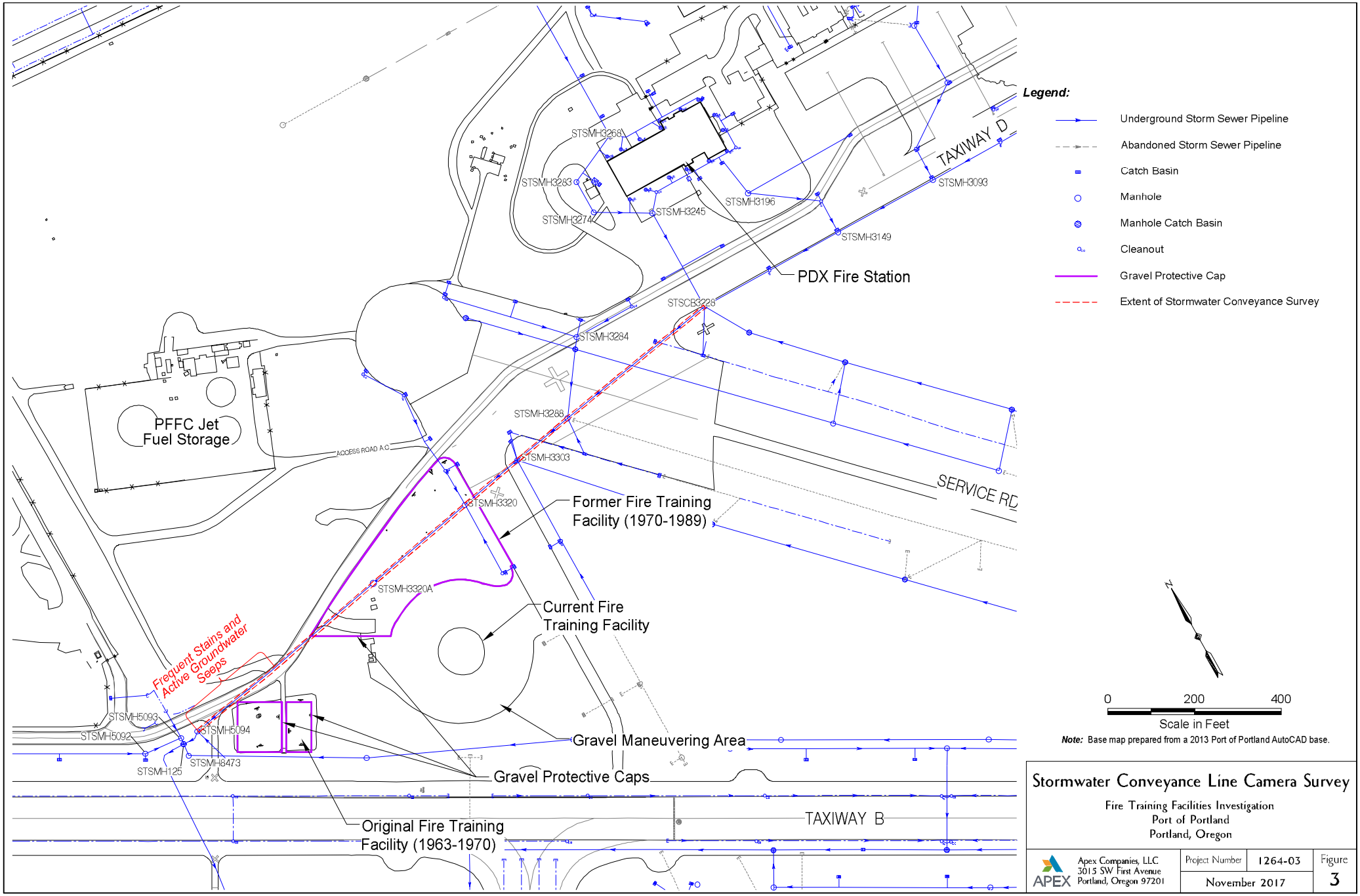
Scale in Feet

Note: Base map prepared from a 2013 Port of Portland AutoCAD base.

Site Vicinity Plan

Fire Training Facilities Investigation
Port of Portland
Portland, Oregon

APEX Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1264-03	Figure 2
	November 2017		

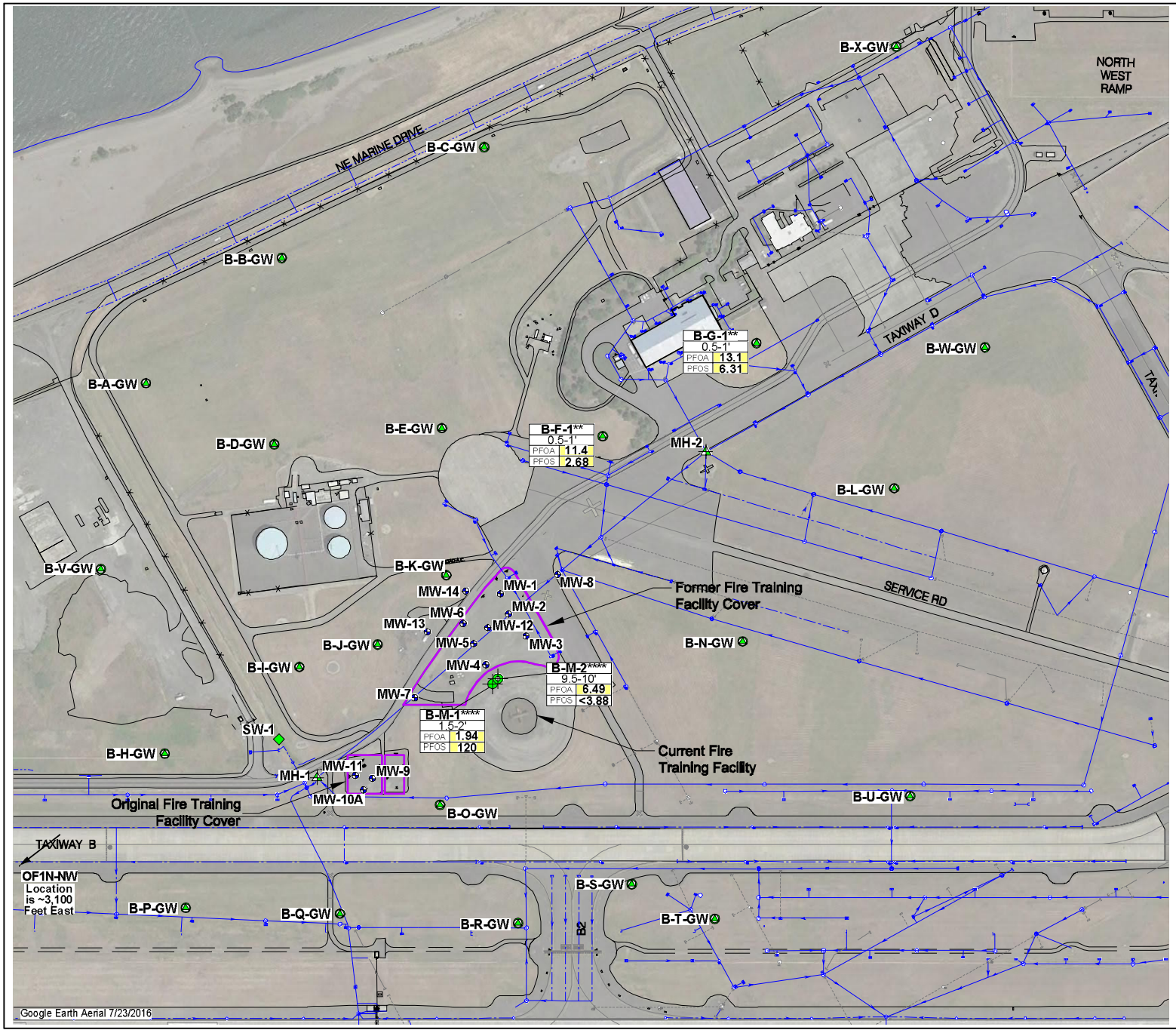


Stormwater Conveyance Line Camera Survey

Fire Training Facilities Investigation
Port of Portland
Portland, Oregon

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	1264-03	Figure
November 2017		3



Legend:

- B-A-GW — Shallow Groundwater and Vadose Zone Soil Location
- B-M-1 / B-M-2 (Co-located) — Deep Groundwater Location (40'; Overbank Deposits); Deep Groundwater Location (61.5'; Columbia River Sand Aquifer)
- MH-1 — Stormwater Sample Location (Manhole)
- SW-1 — Surface Water Sample Location
- MW-1 — Monitoring Well Location
- Underground Storm Sewer Pipeline
- Abandoned Storm Sewer Pipeline
- Catch Basin
- Manhole
- Gravel Protective Cap
- Location Identification (**Sampled August 2017; ****Sampled October 2017)
- Sample Depth in Feet
- Concentration in µg/kg (ppb)
- Analyte Sampled
- Highlight Exceeds EPA Risk-Based Screening Level for Protection of Drinking Water

	Risk-Based Screening Levels	
	Occupational Direct Contact	Residential Protection of Drinking Water
PFOA *(Perfluorooctanoic Acid)*	16,400 µg/kg	0.172 µg/kg
PFOS *(Perfluorooctanesulfonic Acid)*	16,400 µg/kg	0.378 µg/kg

0 300 600

Scale in Feet

Note: Base map prepared from a 2013 Port of Portland AutoCAD base.

Soil Analytical Results - PFOA/PFOS

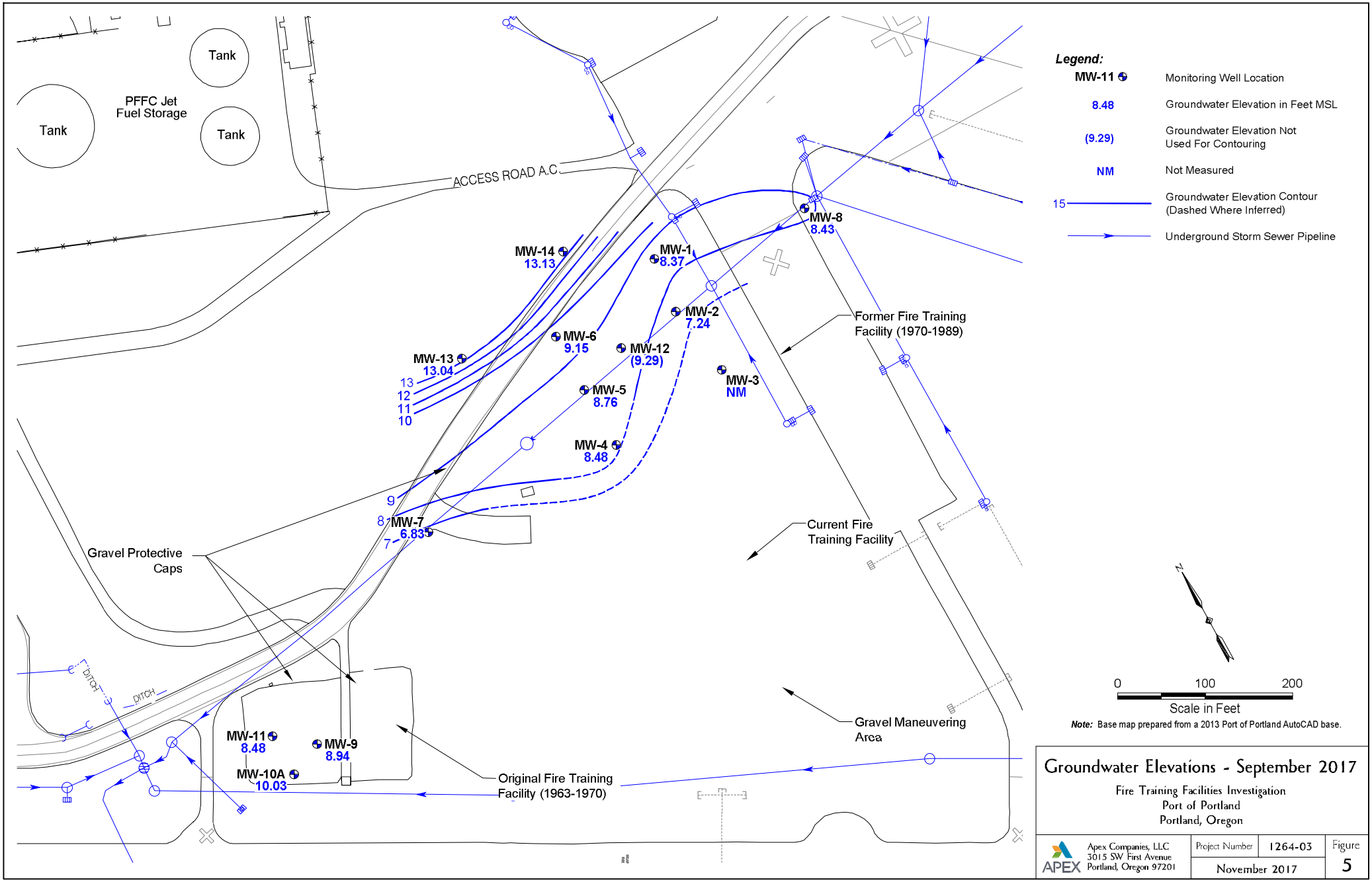
Fire Training Facilities Investigation
Port of Portland
Portland, Oregon

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number 1264-03

November 2017

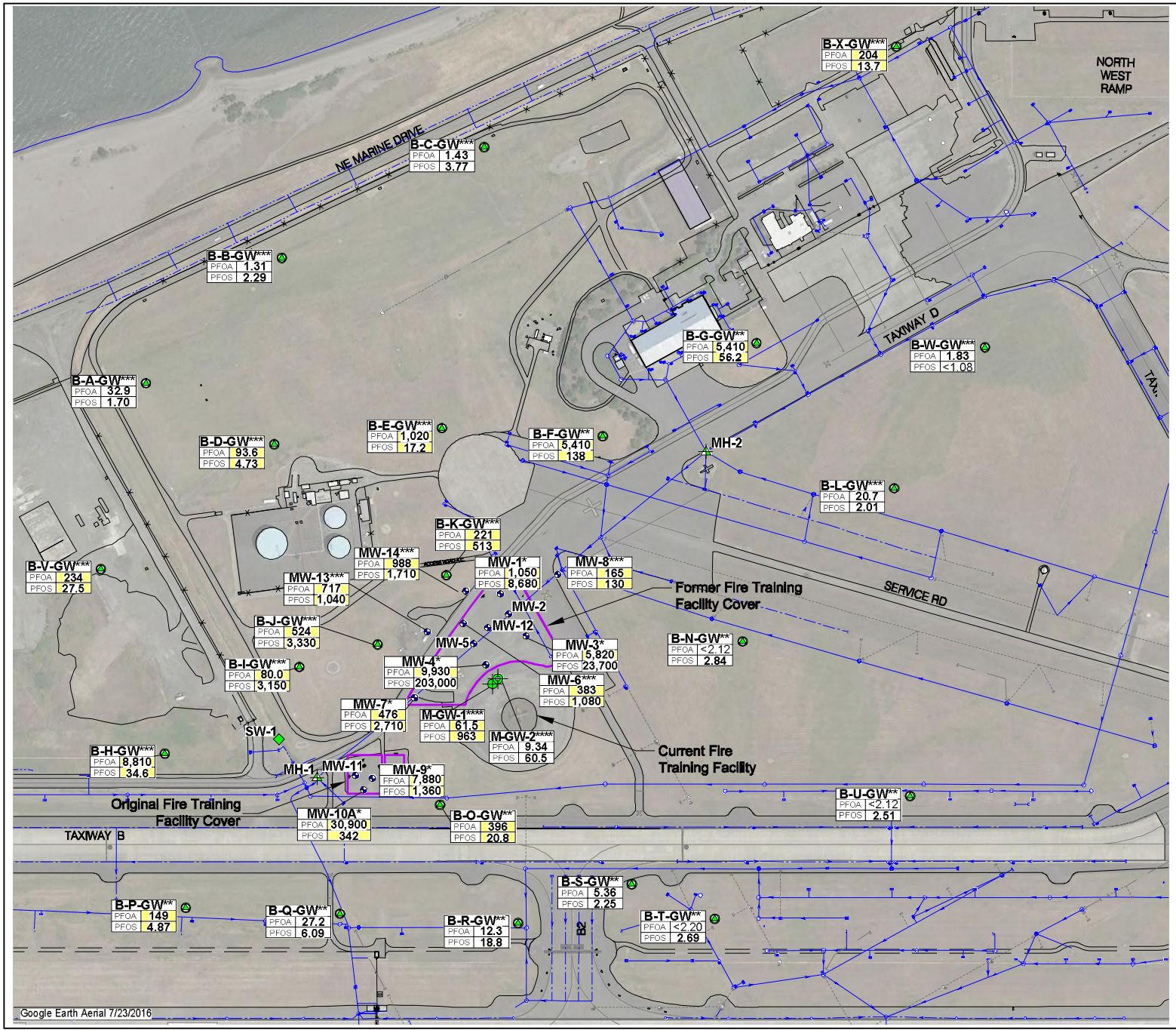
Figure 4



Groundwater Elevations - September 2017

Fire Training Facilities Investigation
Port of Portland
Portland, Oregon

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1264-03	Figure 5
	November 2017		



Legend:

- B-A-GW — Shallow Groundwater and Vadose Zone Soil Location
- B-M-1 — Deep Groundwater Location (40'; Overbank Deposits) (Co-located)
- B-M-2 — Deep Groundwater Location (61.5'; Columbia River Sand Aquifer) (Co-located)
- MH-1 — Stormwater Sample Location (Manhole)
- SW-1 — Surface Water Sample Location
- MW-1 — Monitoring Well Location
- Underground Storm Sewer Pipeline
- Abandoned Storm Sewer Pipeline
- Catch Basin
- Manhole
- Gravel Protective Cap
- Location Identification
  - *Sampled April 2017
  - **Sampled August 2017
  - ***Sampled September 2017
  - ****Sampled October 2017
- MW-1* PFOA 1,050 PFOS 8,680 — Concentration in ng/L (ppt)
- Analyte Sampled
- Highlight Exceeds EPA Health Advisory

US EPA Health Advisory for Drinking Water (ng/L)		
PFOA	Perfluorooctanoic Acid	70
PFOS	Perfluorooctanesulfonic Acid	(See Note)
Note: Combined concentration of PFOA and PFOS in drinking water.		

0 300 600
Scale in Feet

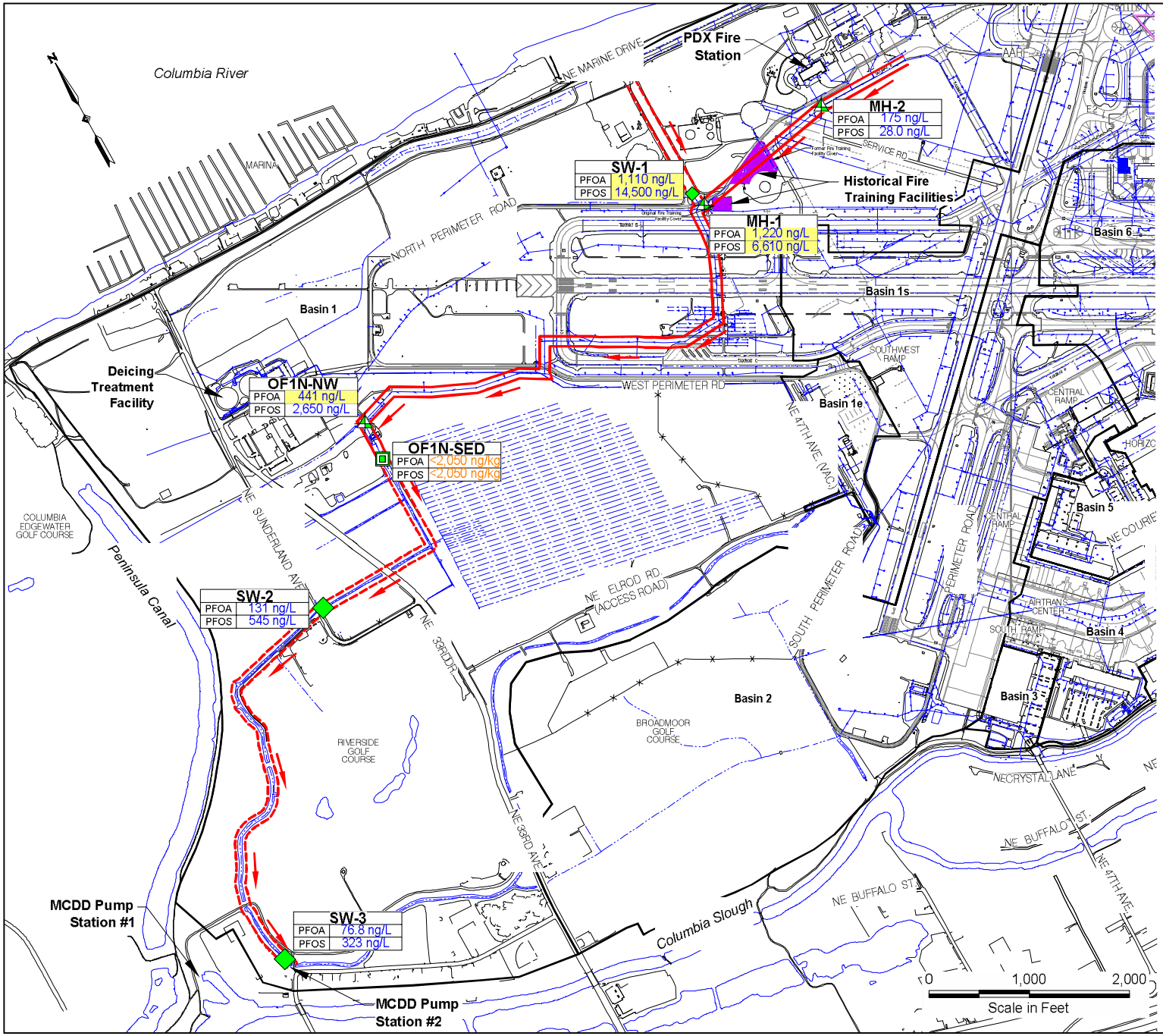
Note: Base map prepared from a 2013 Port of Portland AutoCAD base.

Groundwater Analytical Results - PFOA/PFOS

Fire Training Facilities Investigation
Port of Portland
Portland, Oregon

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number 1264-03
November 2017
Figure 6



Legend:

- MH-1 — Stormwater Sample Location (Manhole)
- SW-1 — Surface Water Sample Location
- OF1N-SED (Composite) — 5-Point Composite Sediment Sample Location
- Underground Storm Sewer Pipeline
- Abandoned Storm Sewer Pipeline
- Catch Basin
- Manhole
- Manhole Catch Basin
- Cleanout
- Area of Conveyance Line (Underground)
- Area of Drainage Ditch (Above Ground)
- Flow Direction
- Basin 1 — Basin Boundary and Identification
- Port of Portland Property Line

SW-1 (Groundwater Location Identification)
PFOA 1,110 ng/L (Concentration in ng/L (ppt))
PFOS 14,500 ng/L (Analyte Sampled)

Highlight Exceeds EPA Health Advisory

OF1N-SED (Composite Sediment Location Identification)
PFOA <2,050 ng/kg (Concentration in ng/kg (ppt))
PFOS <2,050 ng/kg (Analyte Sampled)

	Risk-Based Screening Levels	
	Construction Worker	Aquatic Organisms - Chronic
PFOA *(Perfluorooctanoic Acid)*	220 ng/L	880,000 ng/L
PFOS *(Perfluorooctanesulfonic Acid)*	5,300 ng/L	140,000 ng/L

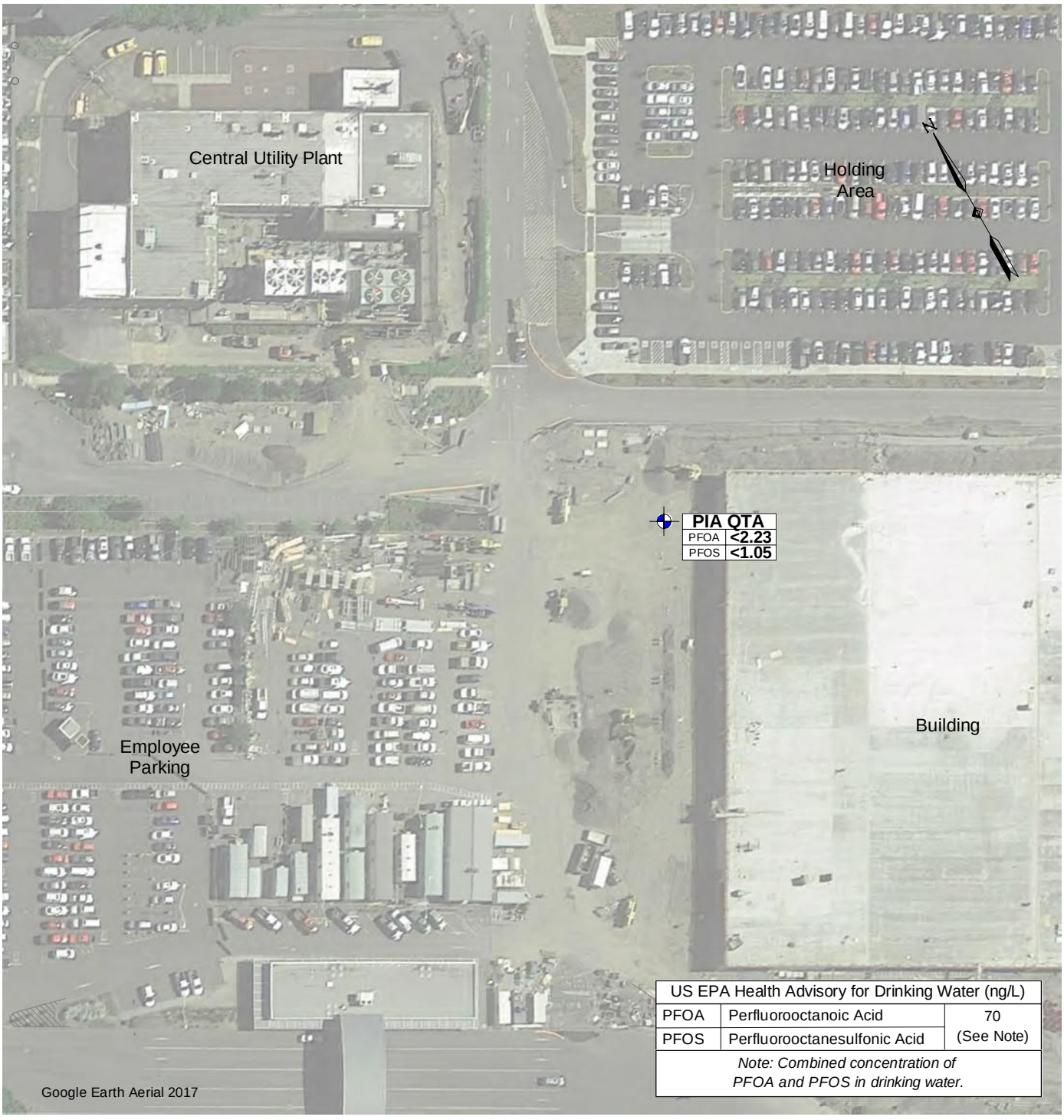
Note: Base map prepared from a 2013 Port of Portland AutoCAD base.

Stormwater Drainage Analytical Results - PFOA/PFOS

Fire Training Facilities Investigation
Port of Portland
Portland, Oregon

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number 1264-03
November 2017
Figure 7



US EPA Health Advisory for Drinking Water (ng/L)		
PFOA	Perfluorooctanoic Acid	70 (See Note)
PFOS	Perfluorooctanesulfonic Acid	
Note: Combined concentration of PFOA and PFOS in drinking water.		

Legend:

PIA QTA QTA Well Location

PIA QTA
PFOA <2.23
PFOS <1.05

Location Identification
**Sampled April 2017*
***Sampled August 2017*
****Sampled September 2017*
*****Sampled October 2017*

Concentration in ng/L (ppt)

Analyte Sampled

Highlight Exceeds EPA Health Advisory

0 100 200

Scale in Feet

Note: Base map prepared from a 2013 Port of Portland AutoCAD base (pdx-features_POP-LOCAL) and a 2017 aerial photograph from Google Earth Pro.

PDX QTA Well Analytical Results - PFOA/PFOS

Fire Training Facilities Investigation
Port of Portland
Portland, Oregon

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number 1264-03

November 2017

Figure 8

Appendix A

Survey of PFOS Screening Values

Table A-1
North American Drinking Water Standards and Guidance Values for PFAS in Drinking Water
Fire Training Facilities
Portland International Airport
Portland, Oregon

		US EPA [12, 13]		Connecticut [14]	Maine [15]	Michigan [16]			Minnesota [17]			Nevada [18]	New Jersey [19, 20]	Texas [21]		Vermont [22]	Canada [23]
		Office of Water	Regional	DPH	CDC	DEQ			Department of Health			DEP	DEP	CEQ		Department of Health	Health Canada
		Health Advisory	Regional Screening Level (TR=1E-06, THQ=1.0)	Action Level	Max. Exposure Guideline	Water Quality Value	Generic Cleanup Criteria and Screening Levels		Health Based Water Guidance			Basic Comparison Limit	Max. Contamination Level	Tier I Protective Concentration Level		Health Advisory	Screening Value
						Drinking Surface Water	Residential Drinking Water	Nonresidential Drinking Water	Short-term	Sub chronic	Chronic	Residential		Residential Ingestion	Commercial/Industrial Ingestion		
		DW	TW	DW	DW	SW	GW	GW	DW	DW	DW	DW	DW	GW	GW	DW	DW
		Concentrations in ng/L															
PFOA	Perfluorooctanoic acid (C8)	70 *	400	70 *	70 *	420 a	89 b	280 b	35	35	35	667	14 c	290	880	20 *	200
PFOS	Perfluorooctanesulfonic acid (C8)	70 *	400	70 *	70 *	11 a	80 b	660 b	27	27	27	667	--	560	1,700	20 *	600
PFBS	Perfluorobutanesulfonic acid (C4)	--	400,000	--	--	--	--	--	--	9,000	7,000	667,000	--	34,000	100,000	--	15,000
PFBA	Perfluorobutanoic acid (C4)	--	--	--	--	--	--	--	7,000	7,000 **	7,000 **	--	--	71,000	210,000	--	30,000
PFNA	Perfluorononaoic acid (C9)	--	--	70 *	--	--	--	--	--	--	--	--	13 c	290	880	--	200
PFPeA	Perfluoropentanoic acid (C5)	--	--	--	--	--	--	--	--	--	--	--	--	93	280	--	200
PFPeS	Perfluoropentane sulfonic acid (C5)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFHxA	Perfluorohexanoic acid (C6)	--	--	--	--	--	--	--	--	--	--	--	--	93	280	--	200
PFHxS	Perfluorohexanesulfonoic acid (C6)	--	--	70 *	--	--	--	--	--	--	--	--	--	93	280	--	600
PFHpA	Perfluoroheptanoic acid (C7)	--	--	70 *	--	--	--	--	--	--	--	--	--	560	1,700	--	200
PFHpS	Perfluoroheptanesulfonic acid (C7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFOSA	Perfluorooctane sulfonamide (C8)	--	--	--	--	--	--	--	--	--	--	--	--	290	880	--	--
PFUnA	Perfluoroundecanoic acid (C11)	--	--	--	--	--	--	--	--	--	--	--	--	290	880	--	--
PFDoA	Perfluorododecanoic acid (C12)	--	--	--	--	--	--	--	--	--	--	--	--	290	880	--	--
PFDA	Perfluorodecanoic acid (C10)	--	--	--	--	--	--	--	--	--	--	--	--	370	1,100	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	--	--	--	--	--	--	--	--	--	--	--	--	290	880	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	--	--	--	--	--	--	--	--	--	--	--	--	290	880	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	--	--	--	--	--	--	--	--	--	--	--	--	290	880	--	--
H4PFOS	6:2 Fluorotelomer sulfonic acid (C6)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
1. Standards and guidance values in ng/L (nanograms per liter), parts per trillion (ppt)
2. -- = No criteria or screening level value established.
3. * = Summed concentration of PFAS cannot exceed value listed. PFAS to sum is determined by federal and state agencies.
4. ** = Set at short-term value.
5. a = Promulgated rule
6. b = Guidance document in draft.
7. c = Recommended value, current law pending.
8. DW = Drinking water
9. SW = Surface water
10. GW = Groundwater
11. TW = Tap water
12. United States Environmental Protection Agency (US EPA), May 2016. Lifetime Health Advisories and Health Effects Support Documents for Perfluorooctanoic Acid and Perfluoroocatane Sulfonate. Federal Register EPA-HQ-OW-2014-0138; FRL-9946-91-OW, Vol. 81, No. 101 (25 May 2016), pp 33250-33251. Accessed August 8, 2017
13. Interstate Technology Regulatory Council (ITRC), November 2017. PFAS -- Per- and Polyfluoroalkyl Substances. Regulations, Guidance and Advisories, Section 4 Tables, Table 4-1.
14. Connecticut Department of Human Health (CTDPH). Action Level List for Private Wells, November 2016 update. Accessed August 8, 2017.
15. Maine Center for Disease Control and Prevention (Maine CDC). Maximum Exposure Guidelines (MEGs) for Drinking Water, December 31, 2016. Accessed August 8, 2017.
16. Michigan Department of Environmental Quality (DEQ). Rule 57 Water Quality Values. Surface Water Assessment Section, October 21, 2016. Accessed August 8, 2017
17. Minnesota Department of Health. Human Health-Based Waster Guidance Table, 2017 updated. Accessed August 8, 2017.
18. Nevada Division of Environmental Protection (NDEP). Basic Comparison Levels. July 2017. Accessed August 9, 2017.
19. New Jersey Drinking Water Quality Institute. Maximum Contaminant Level Recommendation for Perfluorooctanoic Acid in Drinking Water. March 15, 2017. Accessed August 9, 2017.
20. New Jersey Drinking Water Quality Institute. Maximum Contaminant Level Recommendation for Perfluorononanoic Acid in Drinking Water. July 1, 2015. Accessed August 9, 2017.
21. Texas Commission on Environmental Quality (TCEQ). Texas Risk Reduction Program (TRRP) Protective Concentration Levels. March 2017. Accessed August 9, 2017.
22. Vermont Department of Health Environmental Health. Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) Vermont Drinking Water Health Advisory. June 22, 2016. Accessed August 9, 2017.
23. Health Canada. Health Canada's Drinking Water Screening Values for Perfluoroalkylated Substances (PFAS). February 2016. Accessed August 9, 2017.
24. Shading indicates values were used to screen groundwater results from the investigation. See Table 3.

Table A-2
International Drinking Water Standards and Guidance Values for PFAS in Drinking Water
Fire Training Facilities
Portland International Airport
Portland, Oregon

		Australia [7]	Denmark [8]	Germany [9]				The Netherlands [10]	Sweden [11]	United Kingdom [12]
		Department of Health	Ministry of the Environment	Ministry of Health				RIVM	National Food Agency	Public Health England
		Health-Based Guidance Value	Health-Based Guidance	Health-Based Precautionary Value	Health-Based	Precautionary Action Value	Precautionary Action Value	Maximum Permissible Concentration	Maximum Tolerable Level	Public Health Guidance
						Infants	Adults	Surface water used for drinking		
		DW	DW	DW	DW	DW	DW	SW	DW	DW
		Concentrations in ng/L								
PFOA	Perfluorooctanoic acid (C8)	560	300 ***	100 *	300 *	500 *	5,000 *	--	90 *	10,000
PFOS	Perfluorooctanesulfonic acid (C8)	70	100 ***	100 *	300 *	500 *	5,000 *	530	90 *	300
PFBS	Perfluorobutanesulfonic acid (C4)	--	--	--	--	--	--	--	90 *	--
PFBA	Perfluorobutanoic acid (C4)	--	--	--	--	--	--	--	--	--
PFNA	Perfluorononaoic acid (C9)	--	--	--	--	--	--	--	--	--
PFPeA	Perfluoropentanoic acid (C5)	--	--	--	--	--	--	--	90 *	--
PFPeS	Perfluoropentane sulfonic acid (C5)	--	--	--	--	--	--	--	--	--
PFHxA	Perfluorohexanoic acid (C6)	--	--	--	--	--	--	--	90 *	--
PFHxS	Perfluorohexanesulfonoic acid (C6)	70	--	--	--	--	--	--	90 *	--
PFHpA	Perfluoroheptanoic acid (C7)	--	--	--	--	--	--	--	90 *	--
PFHpS	Perfluoroheptanesulfonic acid (C7)	--	--	--	--	--	--	--	--	--
PFOSA	Perfluorooctane sulfonamide (C8)	--	100 ***	--	--	--	--	--	--	--
PFUnA	Perfluoroundecanoic acid (C11)	--	--	--	--	--	--	--	--	--
PFDoA	Perfluorododecanoic acid (C12)	--	--	--	--	--	--	--	--	--
PFDA	Perfluorodecanoic acid (C10)	--	--	--	--	--	--	--	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	--	--	--	--	--	--	--	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	--	--	--	--	--	--	--	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	--	--	--	--	--	--	--	--	--
H4PFOS	6:2 Fluorotelomer sulfonic acid (C6)	--	--	--	--	--	--	--	--	--

Notes:
1. Standards and guidance values in ng/L (nanograms per liter), parts per trillion (ppt)
2. -- = No criteria or screening level value established.
3. * = Summed concentration of PFAS cannot exceed value listed. PFAS to sum is determined by federal and state agencies.
4. *** = An additive approach is implemented when PFOS, PFOA and PFOSA occur in drinking water at the same time: PFOA (conc. µg/L) / 0.3 µg/L + PFOS (conc. µg/L) / 0.1 µg/L + PFOSA (conc. µg/L) /0.1 µg/L < 1
5. DW = Drinking water
6. SW = Surface water
7. Australian Government Depart of Health. Health Based Guidance Values for PFAS. Accessed August 9, 2017.
8. Danish Ministry of the Environment, Environmental Protection Agency. Perfluoroalkylated substances: PFOA, PFOS and PFOS. Evaluation of health hazards and proposal of a health based quality criterion for drinking water, soil and ground water. Environmental Project No. 1665, 2015. Accessed August 9, 2017.
9. German Ministry of Health, Drinking Water Commission. Provisional evaluation of PFT in drinking water with the guide substances perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) as examples. July 13, 2006 revision. Accessed August 9, 2017.
10. National Institute for Public Health and the Environment (RIVM). Environmental risk limits for PFOs. Report 601714013/2010. Accessed August 16, 2017.
11. Sweden National Food Administration (NFA) 2016. Risk management of PFAA in drinking water and fish (In Swedish).
12. Public Health England. PFOS and PFOA General Information. 2009. Accessed August 9, 2017.

Table A-3
North American Groundwater Standards and Guidance Values for PFAS for Protection of Health and Environment
Fire Training Facilities
Portland International Airport
Portland, Oregon

		Alaska [10]	Delaware [11, 12]		Iowa [13]		Maine [14]		Michigan [15]	New Hampshire [16]	New Jersey [17]	North Carolina [18]	Texas [19]		Vermont [20]		Canada [21]		
		DEC	DNREC		DNR		DEP		DEQ	DES	DEP	DWQ	CEQ		DEC		Minister of the Environment		
		Cleanup Level	Reporting Level	Screening Level	Statewide Standard		Remedial Action Guidelines		Generic Cleanup Criteria and Screening Levels	Ambient Groundwater Quality Standard	Interim Groundwater Quality Criteria	Interim Maximum Allowable Standard	Protective Concentration Level		Environmental Standard	Action Level	Groundwater Quality Guidelines		
							Residential	Construction Worker	GW/SW Interface Criteria				Residential Class 3 Contaminated GW	Commercial/Industrial Class 3 Contaminated GW			Course and fine soil type	Course and fine soil type	Course and fine soil type
		GW	GW	GW	Protected GW [6]	Non-Protected GW [7]	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		Concentrations in ng/L																	
PFOA	Perfluorooctanoic acid (C8)	400 a	70 *	70 *	70	--	130	220	12,000 b	70 * a	--	2,000 a	29,000	88,000	20 *	10 * a	--	--	--
PFOS	Perfluorooctanesulfonic acid (C8)	400 a	70 *	70 *	70	1,000	560	5,300	12 b	70 * a	--	--	56,000	170,000	20 *	10 * a	68,000	2,000,000	68,000
PFBS	Perfluorobutanesulfonic acid (C4)	--	--	38,000	--	--	--	--	--	--	--	--	3,400,000	10,000,000	--	--	--	--	--
PFBA	Perfluorobutanoic acid (C4)	--	--	--	--	--	--	--	--	--	--	--	7,100,000	21,000,000	--	--	--	--	--
PFNA	Perfluorononaoic acid (C9)	--	--	--	--	--	--	--	--	--	10 a	--	29,000	88,000	--	--	--	--	--
PFPeA	Perfluoropentanoic acid (C5)	--	--	--	--	--	--	--	--	--	--	--	9,300	28,000	--	--	--	--	--
PFPeS	Perfluoropentane sulfonic acid (C5)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFHxA	Perfluorohexanoic acid (C6)	--	--	--	--	--	--	--	--	--	--	--	9,300	28,000	--	--	--	--	--
PFHxS	Perfluorohexanesulfonoic acid (C6)	--	--	--	--	--	--	--	--	--	--	--	9,300	28,000	--	--	--	--	--
PFHpA	Perfluoroheptanoic acid (C7)	--	--	--	--	--	--	--	--	--	--	--	56,000	170,000	--	--	--	--	--
PFHpS	Perfluoroheptanesulfonic acid (C7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFOSA	Perfluorooctane sulfonamide (C8)	--	--	--	--	--	--	--	--	--	--	--	29,000	88,000	--	--	--	--	--
PFUnA	Perfluoroundecanoic acid (C11)	--	--	--	--	--	--	--	--	--	--	--	29,000	88,000	--	--	--	--	--
PFDoA	Perfluorododecanoic acid (C12)	--	--	--	--	--	--	--	--	--	--	--	29,000	88,000	--	--	--	--	--
PFDA	Perfluorodecanoic acid (C10)	--	--	--	--	--	--	--	--	--	--	--	37,000	110,000	--	--	--	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	--	--	--	--	--	--	--	--	--	--	--	29,000	88,000	--	--	--	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	--	--	--	--	--	--	--	--	--	--	--	29,000	88,000	--	--	--	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	--	--	--	--	--	--	--	--	--	--	--	29,000	88,000	--	--	--	--	--
H4PFOS	6:2 Fluorotelomer sulfonic acid (C6)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
1. Standards and guidance values in ng/L (nanograms per liter), parts per trillion (ppt)
2. -- = No criteria or screening level value established.
3. * = Summed concentration of PFAS cannot exceed value listed. PFAS to sum is determined by federal and state agencies.
4. a = Promulgated rule
5. b = Guidance document in draft.
6. A saturated bed, formation, or group of formations which has a hydraulic conductivity of at least 0.44 meters per day (m/d) and a total dissolved solids concentration of less than 2,500 milligrams per liter (mg/L).
7. A saturated bed, formation or group of formations which is not a protected groundwater source.
8. GW= Groundwater
9. DES = Department of Environmental Services
10. Alaska Department of Environmental Conservation (DEC), July 2017. 18 AAC 75. Oil and Other Hazardous Substances Pollution Control as amended through July 1, 2017 (p 90). Accessed August 8, 2017.
11. Delaware Department of Natural Resources and Environmental Control Site Investigation and Restoration Section (DNREC-SIRS). Guidance for Notification Requirements. January 2013, updated July 2016 (p 18). Accessed August 8, 2017.
12. Delaware Department of Natural Resources and Environmental Control Site Investigation and Restoration Section (DNREC-SIRS). Screening Level Table. January 2013, updated July 2016 (p 14). Accessed August 8, 2017.
13. Iowa Department of Natural Resources (IDNR). Statewide Standards. Accessed August 8, 2017.
14. Maine Department of Environmental Protection (DEP). Maine Remedial Action Guidelines (RAGs) for Sites Contaminated with Hazardous Substances, February 5, 2016 (p 46). Accessed August 8, 2017.
15. Michigan Department of Environmental Quality (DEQ), Remediation and Redevelopment Division. Environmental Contamination Response Activity , draft. October 5, 2016. Accessed August 8, 2017.
16. New Hampshire Code of Administrative Rules. Chapter EN-Or 600 Contaminated Site Management. Accessed August 9, 2017.
17. State of New Jersey Department of Environmental Protection (DEP), Division of Water Monitoring and Standards. Groundwater Quality Standards N.J.A.C. 7:9C: Interim Ground Water Quality Criteria Table. Accessed August 9, 2017.
18. North Carolina Environmental Quality Division of Water Quality Planning (DWQ). Appendix #1: Interim Maximum Allowable Concentrations (IMACs) . April 3, 2013. Accessed August 9, 2017.
19. Texas Commission on Environmental Quality (TCEQ). Texas Risk Reduction Program (TRRP) Protective Concentration Levels. March 2017. Accessed August 9, 2017.
20. State of Vermont Agency of Natural Resources, Department of Environmental Conservation (DEC). Chapter 12, Of the Environmental Protection Rules: Groundwater Protection Rule and Strategy. December 16, 2016. Accessed August 9, 2017.
21. Environment and Climate Change Canada. Canadian Environmental Protection Act, 1999 Draft Federal Environmental Quality Guidelines Perfluorooctane Sulfonate (PFOS). February 2017. Accessed August 9, 2017.

Table A-4
International Groundwater Standards and Guidance Values for PFAS for Protection of Health and Environment
Fire Training Facilities
Portland International Airport
Portland, Oregon

		Germany State Of Bavaria [6]	Germany [7]	The Netherlands [8]	Sweden [9]
		Bavarian State Office for the Environment	State of Baden-Wurttemberg	RIVM	Swedish Geotechnical Institute
		Provisional Threshold	Provisional Threshold	Maximum Permissible Concentration	Preliminary Guide Value
				Freshwater	Lowest value from exposure routes
		GW	GW	GW/SW	GW
		Concentrations in ng/L			
PFOA	Perfluorooctanoic acid (C8)	100 ^^	300^^	--	--
PFOS	Perfluorooctanesulfonic acid (C8)	100^^	230 (300^^)	0.65	45
PFBS	Perfluorobutanesulfonic acid (C4)	6,000^^	3,000^^	--	--
PFBA	Perfluorobutanoic acid (C4)	10,000^^	7,000^^	--	--
PFNA	Perfluorononaoic acid (C9)	60^^	300^^	--	--
PFPeA	Perfluoropentanoic acid (C5)	3,000	3,000^^	--	--
PFPeS	Perfluoropentane sulfonic acid (C5)	--	1,000^^	--	--
PFHxA	Perfluorohexanoic acid (C6)	6,000^^	1,000^^	--	--
PFHxS	Perfluorohexanesulfonoic acid (C6)	100^^	300^^	--	--
PFHpA	Perfluoroheptanoic acid (C7)	300	300^^	--	--
PFHpS	Perfluoroheptanesulfonic acid (C7)	300	300^^	--	--
PFOSA	Perfluorooctane sulfonamide (C8)	100	--	--	--
PFUnA	Perfluoroundecanoic acid (C11)	--	--	--	--
PFDoA	Perfluorododecanoic acid (C12)	--	--	--	--
PFDA	Perfluorodecanoic acid (C10)	100	300^^	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	--	--	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	--	--	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	--	--	--	--
H4PFOS	6:2 Fluorotelomer sulfonic acid (C6)	100	300^^	--	--

Notes:
1. Standards and guidance values in ng/L (nanograms per liter), parts per trillion (ppt)
2. -- = No criteria or screening level value established.
3. ^^ = When these compounds are present at the same the following equation is to be used:Σ (Concentration/Limit) ≤ 1.
4. GW = Ground water
5. SW = Surface water
6. Bavarian State Office of the Environment. Leitlinien zur vorläufigen Bewertung von PFC-Verunreinigungen in Wasser und Boden. April 2017 update. Accessed August 17, 2017.
7. Environmental Science for the European Refining Industry. Environmental fate and effects of poly- and perfluoroalkyl substances. August 2016. Accessed August 16, 2017.
8. National Institute for Public Health and the Environment (RIVM). Environmental risk limits for PFOS. Report 601714013/2010. Accessed August 16, 2017
9. Swedish Geotechnical Institute. Preliminary guideline values for highly fluorinated substances (PFAS) in soil and groundwater. 2015. Accessed August 16, 2017.

Table A-5
North American Surface Water Standards and Guidance Values for PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

		Maine [6]						Michigan [7]				Canada [8]
		CDC						DEQ				Minister of the Environment
		Screening Level						Water Quality Values				Environmental Quality Guidelines
		Child Wading	Child Swimming	Adult Wading	Adult Swimming	Recreational	Construction Worker	Non-Drinking Surface Water	Final Chronic Value	Aquatic Max Values	Final Acute Value	Benchmark for the Quality of the Ambient Environment
		SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
		Concentrations in ng/L										
PFOA	Perfluorooctanoic acid (C8)	60	50	440	270	50	220	12,000	880,000 a	7,700,000 a	15,000,000 a	--
PFOS	Perfluorooctanesulfonic acid (C8)	1,400	1,200	10,400	6,500	1,200	5,300	12	140,000 a	780,000 a	1,600,000 a	6,800 b
PFBS	Perfluorobutanesulfonic acid (C4)	--	--	--	--	--	--	--	--	--	--	--
PFBA	Perfluorobutanoic acid (C4)	--	--	--	--	--	--	--	--	--	--	--
PFNA	Perfluorononaoic acid (C9)	--	--	--	--	--	--	--	--	--	--	--
PFPeA	Perfluoropentanoic acid (C5)	--	--	--	--	--	--	--	--	--	--	--
PFPeS	Perfluoropentane sulfonic acid (C5)	--	--	--	--	--	--	--	--	--	--	--
PFHxA	Perfluorohexanoic acid (C6)	--	--	--	--	--	--	--	--	--	--	--
PFHxS	Perfluorohexanesulfonoic acid (C6)	--	--	--	--	--	--	--	--	--	--	--
PFHpA	Perfluoroheptanoic acid (C7)	--	--	--	--	--	--	--	--	--	--	--
PFHpS	Perfluoroheptanesulfonic acid (C7)	--	--	--	--	--	--	--	--	--	--	--
PFOSA	Perfluorooctane sulfonamide (C8)	--	--	--	--	--	--	--	--	--	--	--
PFUnA	Perfluoroundecanoic acid (C11)	--	--	--	--	--	--	--	--	--	--	--
PFDoA	Perfluorododecanoic acid (C12)	--	--	--	--	--	--	--	--	--	--	--
PFDA	Perfluorodecanoic acid (C10)	--	--	--	--	--	--	--	--	--	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	--	--	--	--	--	--	--	--	--	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	--	--	--	--	--	--	--	--	--	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	--	--	--	--	--	--	--	--	--	--	--
H4PFOS	6:2 Fluorotelomer sulfonic acid (C6)	--	--	--	--	--	--	--	--	--	--	--

Notes:
1. Standards and guidance values in ng/L (nanograms per liter), parts per trillion (ppt)
2. -- = No criteria or screening level value established.
3. a = Promulgated rule
4. b = Guidance document in draft.
5. SW = Surface water
6. Maine Department of Environmental Health, Center for Disease Control and Precention (CDC), Department of Health and Human Services. Human Health Risk-Based Screening Levels for Perfluoroalkyl Compounds . June 6, 2014. Accessed August 8, 2017.
7. Michigan Department of Environmental Quality (DEQ). Rule 57 Water Quality Values. Surface Water Assessment Section, October 21, 2016. Accessed August 8, 2017.
8. Environment and Climate Change Canada. Canadian Environmental Protection Act, 1999 Draft Federal Environmental Quality Guidelines Perfluorooctane Sulfonate (PFOS). February 2017. Accessed August 9, 2017.
9. Stormwater and surface water analytical results from the investigation were screened against the Maine Department of Environmental Health, CDC, Human Health Risk-Based Screening Levels for Perfluoroalkyl Compounds for contruction workers.
10. Stormwater and surface water analytical results from the investigation were screened against the Michigan DEQ water quality values for aquatic species.
11. Shading indicates values were used to screen stormwater and surface water results from the investigation. See Table 7.

Table A-6
International Surface Water Standards and Guidance Values for PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

		Australia [6]	Australia [7]				EU [8]		Germany State Of Bavaria [9]	The Netherlands [10]	
		Department of Health	HEPA				Annual Average Environmental Quality Standard	Maximum acceptable Concentration	Bavarian State Office for the Environment	RIVM	
		Health-Based Guidance Values	Ecological Criteria						Predicted No Effect Concentration	Maximum Permissible Concentration	
			Freshwater 99% species protection	Freshwater 95% species protection	Freshwater 90% species protection	Freshwater 80% species protection				Freshwater	Marine Water
		RW	SW	SW	SW	SW	SW (Inland)	SW (Inland)	SW	GW/SW	SW
		Concentrations in ng/L									
PFOA	Perfluorooctanoic acid (C8)	5,600	19,000	220,000	632,000	1,824,000	--	--	570,000	--	--
PFOS	Perfluorooctanesulfonic acid (C8)	700	0.23	130	2,000	31,000	0.65	36,000	50	0.65	0.53
PFBS	Perfluorobutanesulfonic acid (C4)	--	--	--	--	--	--	--	3,700,000	--	--
PFBA	Perfluorobutanoic acid (C4)	--	--	--	--	--	--	--	1,260,000	--	--
PFNA	Perfluorononaoic acid (C9)	--	--	--	--	--	--	--	--	--	--
PFPeA	Perfluoropentanoic acid (C5)	--	--	--	--	--	--	--	320,000	--	--
PFPeS	Perfluoropentane sulfonic acid (C5)	--	--	--	--	--	--	--	--	--	--
PFHxA	Perfluorohexanoic acid (C6)	--	--	--	--	--	--	--	1,000,000	--	--
PFHxS	Perfluorohexanesulfonoic acid (C6)	700	--	--	--	--	--	--	250,000	--	--
PFHpA	Perfluoroheptanoic acid (C7)	--	--	--	--	--	--	--	--	--	--
PFHpS	Perfluoroheptanesulfonic acid (C7)	--	--	--	--	--	--	--	--	--	--
PFOSA	Perfluorooctane sulfonamide (C8)	--	--	--	--	--	--	--	--	--	--
PFUnA	Perfluoroundecanoic acid (C11)	--	--	--	--	--	--	--	--	--	--
PFDoA	Perfluorododecanoic acid (C12)	--	--	--	--	--	--	--	--	--	--
PFDA	Perfluorodecanoic acid (C10)	--	--	--	--	--	--	--	--	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	--	--	--	--	--	--	--	--	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	--	--	--	--	--	--	--	--	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	--	--	--	--	--	--	--	--	--	--
H4PFOS	6:2 Fluorotelomer sulfonic acid (C6)	--	--	--	--	--	--	--	870,000	--	--

Notes:
1. Standards and guidance values in ng/L (nanograms per liter), parts per trillion (ppt)
2. -- = No criteria or screening level value established.
3. SW = Surface water
4. GW = Groundwater
5. RW = Recreational water
6. Australian Government Depart of Health. Health Based Guidance Values for PFAS. Accessed August 9, 2017.
7. Australia and New Zealand Heads of Environmental Protection Agencies (HEPA). PFAS National Environmental Management Plan. Draft August, 2017. Accessed August 9, 2017.
8. European Union (EU), August 2013. Water Framework Directive 2013/39/EU, Environmental Quality Standards.
9. Bavarian State Office of the Environment. Leitlinien zur vorläufigen Bewertung von PFC-Verunreinigungen in Wasser und Boden. April 2017 update. Accessed August 17, 2017.
10. National Institute for Public Health and the Environment (RIVVM). Environmental risk limits for PFOS. Report 601714013/2010. Accessed August 16, 2017.

Table A-7
North American Soil Standards and Guidance Values for PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

		US EPA [13, 14]			Alaska [15]				Delaware [16]		Iowa [17]	Maine [18]					Michigan [19]					
		Regional Screening Level (TR=1E-06, THQ=1.0)			Cleanup Level						Statewide Standards	Remedial Action Guidelines					Generic Cleanup Criteria and Screening Levels					
		Residential	Industrial	Protection of GW	Arctic Zone	Under 40" Zone	Over 40" Zone	Migration to GW	Reporting Level	Screening Level	Shallow Soil Exposure (0-10ft)	Leaching to GW	Residential Soil	Park User	Commercial Worker	Construction Worker	Residential Drinking Water Protection	Nonresidential Drinking Water Protection	Residential Direct Contact	Nonresidential Direct Contact	GSI Protection Criteria	GSI Protection Criteria for HDV
		Concentrations in ng/g																				
PFOA	Perfluorooctanoic acid (C8)	1,260	16,400	0.172	2,200	1,600	1,300	1.7	16,000	16,000	1,200	300	800	1,300	6,200	1,400	75 b	240 b	6,000 b	18,000 b	10,000 b	350 b
PFOS	Perfluorooctanesulfonic acid (C8)	1,260	16,400	0.378	2,200	1,600	1,300	3	6,000	6,000	1,800	--	11,000	18,000	82,000	19,000	1.6 b	6.6 b	2,100 b	28,000 b	0.24 b	0.22 b
PFBS	Perfluorobutanesulfonic acid (C4)	1,300,000	16,000,000	130	--	--	--	--	1,600,000	160,000	--	--	--	--	--	--	--	--	--	--	--	--
PFBA	Perfluorobutanoic acid (C4)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFNA	Perfluorononanoic acid (C9)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFPeA	Perfluoropentanoic acid (C5)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFHxA	Perfluorohexanoic acid (C6)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFHxS	Perfluorohexanesulfonoic acid (C6)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFHpA	Perfluoroheptanoic acid (C7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFOSA	Perfluorooctane sulfonamide (C8)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFUnA	Perfluoroundecanoic acid (C11)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFDoA	Perfluorododecanoic acid (C12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFDA	Perfluorodecanoic acid (C10)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A-7
North American Soil Standards and Guidance Values for PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

		Nevada [20]			Texas [21]												Canada [22]			
		Basic Comparison Level			Protective Concentration Level												Federal Soil Quality Guidelines			
		Residential	Indoor: Industrial/Commercial Worker	Outdoor: Industrial/Commercial Worker	Residential - 0.5 Acre: Inhalation, ingestion, dermal, vegetable consumption	Residential - 0.5 Acre: Groundwater Protection Ingestion	Residential - 0.5 Acre: Groundwater Protection Class 3	Residential - 30 Acres: Inhalation, ingestion, dermal, vegetable consumption	Residential - 30 Acres: Groundwater Protection Ingestion	Residential - 30 Acres: Groundwater Protection Class 3	Commercial - 0.5 Acre: Inhalation, ingestion, dermal, vegetable consumption	Commercial - 0.5 Acre: Groundwater Protection Ingestion	Commercial - 0.5 Acre: Groundwater Protection Class 3	Commercial - 30 Acres: Inhalation, ingestion, dermal, vegetable consumption	Commercial - 30 Acres: Groundwater Protection Ingestion	Commercial - 30 Acres: Groundwater Protection Class 3	Agricultural	Residential/Parkland	Commercial	Industrial
		Concentrations in ng/g																		
PFOA	Perfluorooctanoic acid (C8)	1,560	46,700	26,000	600	3	300	490	1.5	150	2,400	8.8	880	1,400	4.4	440	--	--	--	--
PFOS	Perfluorooctanesulfonic acid (C8)	1,560	46,700	26,000	1,500	50	5,000	1,500	25	2,500	15,000	150	15,000	14,000	75	7,500	10 c	10 c	140 coarse soil[d] c 210 fine soil[d] c	140 coarse soil[d] c 210 fine soil[d] c
PFBS	Perfluorobutanesulfonic acid (C4)	125,000 sat	125,000 sat	125,000 sat	86,000	110	11,000	80,000	53	5,300	600,000	320	32,000	440,000	160	16,000	--	--	--	--
PFBA	Perfluorobutanoic acid (C4)	--	--	--	180,000	200	20,000	160,000	98	9,800	1,100,000	580	58,000	820,000	290	29,000	--	--	--	--
PFNA	Perfluorononanoic acid (C9)	--	--	--	760	3.1	310	730	1.5	150	6,100	9.2	920	4,900	4.6	460	--	--	--	--
PFPeA	Perfluoropentanoic acid (C5)	--	--	--	250	0.32	32	250	0.16	16	2,600	0.95	95	2,600	0.48	48	--	--	--	--
PFHxA	Perfluorohexanoic acid (C6)	--	--	--	250	0.48	48	250	0.24	24	2,600	1.4	140	2,600	0.72	72	--	--	--	--
PFHxS	Perfluorohexanesulfonoic acid (C6)	--	--	--	250	2	200	240	1	100	2,200	6.1	610	2,000	3	300	--	--	--	--
PFHpA	Perfluoroheptanoic acid (C7)	--	--	--	1,500	4.6	460	1,500	2.3	230	16,000	14	1,400	16,000	6.8	680	--	--	--	--
PFOSA	Perfluorooctane sulfonamide (C8)	--	--	--	58	920	92,000	31	460	46,000	87	2,800	280,000	45	1,400	140,000	--	--	--	--
PFUnA	Perfluoroundecanoic acid (C11)	--	--	--	800	80	1,800	800	9.2	920	8,200	55	5,500	8,200	27	2,700	--	--	--	--
PFDoA	Perfluorododecanoic acid (C12)	--	--	--	790	34	3,400	780	17	1,700	7,500	100	10,000	7,000	50	5,000	--	--	--	--
PFDA	Perfluorodecanoic acid (C10)	--	--	--	990	22	2,200	980	11	1,100	9,400	67	6,700	8,800	33	3,300	--	--	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	--	--	--	800	40	4,000	800	20	2,000	8,200	120	12,000	8,200	60	6,000	--	--	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	--	--	--	510	110	11,000	510	56	5,600	8,200	340	34,000	8,200	170	17,000	--	--	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	--	--	--	610	61	6,100	610	30	3,000	8,200	180	18,000	8,200	91	9,100	--	--	--	--

Notes:

1. Standards and guidance values in µg/kg (micrograms per gram), parts per billion (ppb)
2. -- = No criteria or screening level value established.
3. b = Guidance document in draft.
4. c = Recommended value, current law pending.
5. sat = Saturation limit
6. More than 50% of mass contains particles greater than 75 µm mean diameter (D_{50} > 75 µm).
7. More than 50% of mass contains particles less than 75 µm mean diameter (D_{50} < 75 µm).
8. US EPA = United States Environmental Protection Agency
9. HDV = Human drinking water value.
10. NC = No Criteria
11. GSI = Groundwater Surface Water Interface
12. GW = Groundwater
13. Interstate Technology Regulatory Council (ITRC), November 2017. PFAS -- Per- and Polyfluoroalkyl Substances. Regulations, Guidance and Advisories, Section 4 Tables, Table 4-2.
14. EPA RSLs, June 2017. Calculated using the EPA RSL calculator with EPA OWRFDs, TR=1E-06, HQ=1.0 and exposure assumptions including residential, composite worker and soil to groundwater.
15. Alaska Department of Environmental Conservation, July 2017. 18 AAC 75. Oil and Other Hazardous Substances Pollution Control as amended through July 1, 2017 (p 90). Accessed August 8, 2017.
16. Delaware Department of Natural Resources and Environmental Control Site Investigation and Restoration Section (DNREC-SIRS). Guidance for Notification Requirements. January 2013, updated July 2016 (p 18). Accessed August 8, 2017. Delaware Department of Natural Resources and Environmental Control Site Investigation and Restoration Section (DNREC-SIRS). Screening Level Table. January 2013, updated July 2016 (p 14). Accessed August 8, 2017.
17. Iowa Department of Natural Resources (IDNR). Statewide Standards. Accessed August 8, 2017.
18. Maine Department of Environmental Protection (DEP). Maine Remedial Action Guidelines (RAGs) for Sites Contaminated with Hazardous Substances, February 5, 2016 (p 46). Accessed August 8, 2017. Maine Department of Environmental Health, Center for Disease Control and Prevention, Department of Health and Human Services. Human Health Risk-Based Screening Levels for Perfluoroalkyl Compounds. June 6, 2014. Accessed August 8, 2017.
19. Michigan Department of Environmental Quality (DEQ). Remediation and Redevelopment Division. Environmental Contamination Response Activity, draft. October 5, 2016. Accessed August 8, 2017.
20. Nevada Division of Environmental Protection (NDEP). Basic Comparison Levels. July 2017. Accessed August 9, 2017.
21. Texas Commission on Environmental Quality (TCEQ). Texas Risk Reduction Program (TRRP) Protective Concentration Levels. March 2017. Accessed August 9, 2017.
22. Environment and Climate Change Canada. Canadian Environmental Protection Act, 1999 Draft Federal Environmental Quality Guidelines Perfluorooctane Sulfonate (PFOS). February 2017. Accessed August 9, 2017.
23. Soil analytical results from the investigation were screened against the United States Environmental Protection Agency (USEPA), Regional Screening Level (RSL) for Industrial Soil (TR=1E-06, HQ=1) June 2017.

24. Shading indicates values were used to screen soil results from the investigation. See Table 2.

Table A-8
International Soil Standards and Guidance Values for PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

		Australia [9]								Denmark [10]	Sweden [11]																					
		Screening Level									Soil Protection											Soil and GW Protection (One Resource)											
		20% of FSANZ TDI	20% of FSANZ TDI	20% of FSANZ TDI	Based on Previous TDI	Government of Western Australia	Draft default guidelines from CRC Care	Draft default guidelines from CRC Care	Draft default guidelines from CRC Care	Health-Based Guidance	Health Risk Based Guideline Value	Intake of Soil	Skin	Inhalation of Dust	Inhalation of Vapor	Intake of GW as DW	Intake of Plants	Protection of the Environment	Protection of GW	Protection of SW	Preliminary Guideline Value	Health Risk Based Guideline Value	Intake of Soil	Skin	Inhalation of Dust	Inhalation of Vapor	Intake of GW as DW	Intake of Plants	Protection of the Environment	Protection of GW	Protection of SW	Preliminary Guideline Value
		Residential	High Density Residential	Industrial/Commercial	Residential	Commercial and Industrial	National Parks/Areas with high ecological value	Urban residential/public open spaces	Commercial and Industrial spaces																							
		Concentrations in ng/g																														
PFOA	Perfluorooctanoic acid (C8)	100 b	20,000 b	100,000 b	40,000 b	1,000,000 b	1,000 b	29,000 b	81,000 b	1,300 ***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFOS	Perfluorooctanesulfonic acid (C8)	9 b	2,000 b	20,000 b	4,000 * b	100,000 * b	6,600 b	32,000 b	60,000 b	390 ***	31	1,900	6,800	2,100,000	3,600,000	33	600	3	6.6	27	3	11,000	17,000	34,000	21,000,000	36,000,000	--	--	300	21	27	20
PFBS	Perfluorobutanesulfonic acid (C4)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFBA	Perfluorobutanoic acid (C4)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFNA	Perfluorononanoic acid (C9)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFPeA	Perfluoropentanoic acid (C5)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFHxA	Perfluorohexanoic acid (C6)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFHxS	Perfluorohexanesulfonic acid (C6)	9 b	2,000 b	20,000 b	4,000 * b	100,000 * b	--	--	60,000 b	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFHpA	Perfluoroheptanoic acid (C7)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFOSA	Perfluorooctane sulfonamide (C8)	--	--	--	--	--	--	--	--	390 ***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFUnA	Perfluoroundecanoic acid (C11)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFDoA	Perfluorododecanoic acid (C12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFDA	Perfluorodecanoic acid (C10)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
1. Standards and guidance values in µg/kg (micrograms per gram), parts per billion (ppb)
2. * = Summed concentration of PFAS cannot exceed value listed. PFAS to sum is determined by federal and state agencies.
3. *** = An additive approach is implemented when PFOS, PFOA and PFOSA occur in soil at the same time: PFOA (conc. mg/kg) / 1.3 mg/kg + PFOS (conc. mg/kg) / 0.39 mg/kg + PFOSA (conc. mg/kg) /0.39 mg/kg < 1
4. -- = No criteria or screening level value established.
5. b = Guidance document in draft.
6. DW = Drinking water
7. SW = Surface water
8. GW = Groundwater
9. Australia and New Zealand Heads of Environmental Protection Agencies (HEPA). PFAS National Environmental Management Plan. Draft August, 2017. Accessed August 9, 2017.
10. Danish Ministry of the Environment, EPA. Perfluoroalkylated substances. Evaluation of health hazards and proposal of a health based quality criterion for drinking water, soil and ground water. Environmental Project No. 1665, 2015. Accessed August 9, 2017.
11. Swedish Geotechnical Institute. Preliminary guideline values for highly fluorinated substances (PFAS) in soil and groundwater. 2015. Accessed August 16, 2017.

Table A-9
North American Sediment Standards and Guidance Values for PFAS
Fire Training Facilities
Portland International Airport
Portland, Oregon

		Maine [3]		
		Screening Level		
		Recreational Child Wading	Recreational Adult Wading	Recreational Sediment SL
		Concentrations in ng/g		
PFOA	Perfluorooctanoic acid (C8)	1,500	14,000	1,500
PFOS	Perfluorooctanesulfonic acid (C8)	20,000	187,000	20,000
PFBS	Perfluorobutanesulfonic acid (C4)	--	--	--
PFBA	Perfluorobutanoic acid (C4)	--	--	--
PFNA	Perfluorononaoic acid (C9)	--	--	--
PFPeA	Perfluoropentanoic acid (C5)	--	--	--
PFHxA	Perfluorohexanoic acid (C6)	--	--	--
PFHxS	Perfluorohexanesulfonoic acid (C6)	--	--	--
PFHpA	Perfluoroheptanoic acid (C7)	--	--	--
PFOSA	Perfluorooctane sulfonamide (C8)	--	--	--
PFUnA	Perfluoroundecanoic acid (C11)	--	--	--
PFDoA	Perfluorododecanoic acid (C12)	--	--	--
PFDA	Perfluorodecanoic acid (C10)	--	--	--
PFDS	Perfluorodecanesulfonic acid (C10)	--	--	--
PFTeDA	Perfluorotetradecanoic acid (C14)	--	--	--
PFTrDA	Perfluorotridecanoic acid (C13)	--	--	--

Notes:

1. Standards and guidance values in µg/kg (micrograms per gram), parts per billion (ppb)

2. SL = Screening level

3. Maine Department of Environmental Health, Center for Disease Control and Prevention, Department of Health and Human Services. Human Health Risk-Based Screening Levels for Perfluoroalkyl Compounds. June 6, 2014. Accessed August 8, 2017.

Appendix B

Pacific Int-R-Tek Pipeline Video Report (DVD)

PACIFIC INT-R-TEK
A Division of Scott Pipeline Video, Inc.
2501 NW Division St
Gresham, OR 97030
OR CCB# 146869, WA PACIFI*991CW

PACIFIC INT-R-TEK
PIPELINE VIDEO REPORT

Mobile: 503-730-4343
Office: 503-665-1090
Fax: 503-665-1160

Customer	Project	Media Label
APEX Companies	Fire Training Facilities Investigation	10364

Location/Street	Surveyor	Report #
Figure 1	Kevin Odermann	

Upstream ID	Downstream ID	Camera Direction	Date	Time
STS MH 3228	STS MH 3288	Upstream	09-29-17	7:11 AM

Pipe Size	Pipe Type	Sewer Use	Purpose	Length TV'd
36	RCP	Storm	Testing	410

Comments	Reference Ball
	None

Ftg.	Code	Description	Position	Severity	Comment
410.0	MH	Manhole			STS MH 3228 (SCATTERED I&I STAINS IN THIS LINE)
293.4	ST	Service Top			CAP?
0.0	MH	Manhole			STS MH 3288

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Fax: 503-665-1160

Customer	Project	Media Label
APEX Companies	Fire Training Facilities Investigation	10364

Location/Street	Surveyor	Report #
Figure 1	Kevin Odermann	

Upstream ID	Downstream ID	Camera Direction	Date	Time
STS MH 3288	STS MH 3303	Downstream	09-29-17	7:36 AM

Pipe Size	Pipe Type	Sewer Use	Purpose	Length TV'd
36	RCP	Storm	Testing	154

Comments	Reference Ball
	None

Ftg.	Code	Description	Position	Severity	Comment
0.0	MH	Manhole			STS MH 3288
83.6	ST	Service Top	12		CAP?
154.0	MH	Manhole			STS MH 3303 (SCATTERED I&I STAINS IN THIS LINE)

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Fax: 503-665-1160

Customer	Project	Media Label
APEX Companies	Fire Training Facilities Investigation	10364

Location/Street	Surveyor	Report #
Figure 1	Kevin Odermann	

Upstream ID	Downstream ID	Camera Direction	Date	Time
STS MH 3303	STS MH 3320	Downstream	09-29-17	4:52 AM

Pipe Size	Pipe Type	Sewer Use	Purpose	Length TV'd
36	RCP	Storm	Testing	161.5

Comments	Reference Ball
	None

Ftg.	Code	Description	Position	Severity	Comment
0.0	MH	Manhole			STS MH 3303

Ftg.	Code	Description	Position	Severity	Comment
161.5	MH	Manhole			STS MH 3320

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PIPELINE VIDEO REPORT

Mobile: 503-730-4343
Office: 503-665-1090
Fax: 503-665-1160

Customer	Project	Media Label
APEX Companies	Fire Training Facilities Investigation	10364

Location/Street	Surveyor	Report #
Figure 1	Kevin Odermann	

Upstream ID	Downstream ID	Camera Direction	Date	Time
STS MH 3320A	STS MH 5094	Downstream	09-29-17	5:57 AM

Pipe Size	Pipe Type	Sewer Use	Purpose	Length TV'd
36	RCP	Storm	Testing	496

Comments

Reference Ball: None

Ftg.	Code	Description	Position	Severity	Comment
0.0	MH	Manhole			STS MH 3320A (ADDED MH NOT ON THE MAP)
18.0	DB	Debris			LARGE PIPE FRAG/GROUT BLOCKING THE LINE @ THIS POINT
56.3	C	Comment			START OF I&I STAINING
112.3	SL	Service Left	11		
324.6	LK	Leak			LIVE I&I @ THIS JOINT
328.8	LK	Leak			
331.9	LK	Leak			LIVE I&I @ THIS JOINT
334.5	LK	Leak			LIVE I&I @ THIS JOINT (HEAVY FLOW)
341.0	LK	Leak			LIVE I&I @ THIS JOINT
369.1	ST	Service Top	12		
402.0	LK	Leak			LIVE I&I @ THIS JOINT
418.0	LK	Leak			LIVE I&I @ THIS JOINT
492.0	TR	Transition (Pipe Change)			TRANS FROM RCP TO CPE
496.0	MH	Manhole			STS MH 5094

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PIPELINE VIDEO REPORT

Mobile: 503-730-4343
Office: 503-665-1090
Fax: 503-665-1160

Customer	Project	Media Label
APEX Companies	Fire Training Facilities Investigation	10364

Location/Street	Surveyor	Report #
Figure 1	Kevin Odermann	

Upstream ID	Downstream ID	Camera Direction	Date	Time
STS MH 3320	STS MH 3320A	Downstream	09-29-17	5:06 AM

Pipe Size	Pipe Type	Sewer Use	Purpose	Length TV'd
36	RCP	Storm	Testing	318

Comments

Reference Ball: None

Ftg.	Code	Description	Position	Severity	Comment
0.0	MH	Manhole			STS MH 3320
8.1	C	Comment	8 to 10		I&I STAIN
15.6	SL	Service Left	10		HEAVY MUD IN THIS LAT
17.1	SR	Service Right	2		CAP? I&I STAIN
18.5	C	Comment			START OF I&I STAINING @ THE JOINTS
314.6	DB	Debris			LARGE PIPE FRAG/GROUT BLOCKING THE LINE @ THIS POINT & WE CAN'T GET THE CAM PAST IT
318.0	MH	Manhole			STS MH 3320A (ADDED MH NOT ON THE MAP)

Appendix C

Lithologic Logs

Sample Descriptions

Classification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, and grain size, and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D 2488 were used as an identification guide.

Soil descriptions consist of the following:
MAJOR CONSTITUENT with additional remarks; color, moisture, minor constituents, density/consistency.

Density/Consistency

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits and push probe explorations is estimated based on visual observation and is presented parenthetically on test pit and push probe exploration logs.

SAND and GRAVEL Density	Standard Penetration Resistance in Blows/Foot
Very loose	0 - 4
Loose	4 - 10
Medium dense	10 - 30
Dense	30 - 50
Very dense	>50

SILT or CLAY Density	Standard Penetration Resistance in Blows/Foot	Approximate Shear Strength in TSF
Very soft	0 - 2	<0.125
Soft	2 - 4	0.125 - 0.25
Medium stiff	4 - 8	0.25 - 0.5
Stiff	8 - 15	0.5 - 1.0
Very Stiff	15 - 30	1.0 - 2.0
Hard	>30	>2.0

Moisture

Dry	Little perceptible moisture.
Sl. Moist	Some perceptible moisture, probably below optimum.
Moist	Probably near optimum moisture content.
Wet	Much perceptible moisture, probably above optimum.

Minor Constituents

	Estimated Percentage
Not identified in description	0 - 5
Slightly (clayey, silty, etc.)	5 - 12
Clayey, silty, sandy, gravelly	12 - 30
Very (clayey, silty, etc.)	30 - 50

Sampling Symbols

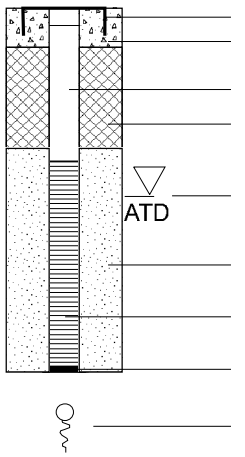
BORING AND PUSH-PROBE SYMBOLS

	Recovery
	No Recovery
	Temporarily Screened Interval
PID	Photoionization Detector Reading
W	Water Sample
	Sample Submitted for Chemical Analysis
NS	No Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
BF	Biogenic Film

TEST PIT SOIL SAMPLES

	Grab (Jar)
	Bag
	Shelby Tube

Groundwater Observations and Monitoring Well Construction



Flush Mounted Monument
Concrete Surface Seal
Well Casing
Bentonite Seal
Groundwater Level on Date or (ATD) At Time of Drilling
Sand Pack
Well Screen
End Cap
Groundwater Seepage (Test Pits)

Key to Exploration Logs

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

APEX
Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	1264-02	Figure
September 2017		Key

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-A**

Project Number: **1264-02**
Logged By: K. Kline
Date: September 27, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 14.88'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
0	Hand Auger	B-A-1(6-12")	<5	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, soft.
			<5	NS	Becomes sandy.
			<5	NS	
5			<5	NS	
			<5	NS	
			<5	NS	Becomes moist.
			<5	NS	SILT (ML); gray and red (2.5 YR 4/1), moist, medium stiff.
10			<5	NS	
			<5	NS	
		B-A-2(13.5-14')	<5	NS	Silty fine SAND (SP); brown (10YR 4/3), wet, medium dense.
15			<5	NS	
			<5	NS	Becomes gray.
			<5	NS	
			<5	NS	

B-A-GW
(Water Sample)

Bottom of Boring at 20.0' BGS.

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Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-B**

Project Number: **1264-02**
Logged By: K. Kline
Date: September 27, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 16.59'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-B-1(6-12")	<5	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, gravelly, soft.
			<5	NS	SAND (SP); brown (10 YR 5/4), slightly moist, loose.
5			<5	NS	Becomes moist.
			<5	NS	
			<5	NS	SILT (ML); red and brown (5YR 4/3), moist, medium stiff.
10			<5	NS	
		B-B-2(13.5-14')	<5	NS	
			<5	NS	SAND (SP); brown (10YR 5/4), wet, loose.
15			<5	NS	
			<5	NS	
			<5	NS	

▽

B-B-GW
(Water Sample)

Bottom of Boring at 20.0' BGS.

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Portland, Oregon 97201

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-C**
Project Number: **1264-02**
Logged By: K. Kline
Date: September 27, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 17.75'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-C-1(6-12")	<5	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, soft.
					SAND (SP); brown (10YR 5/4), slightly moist, loose.
			<5	NS	
			<5	NS	
5			<5	NS	SILT (ML); brown (10YR 4/3), slightly moist, medium stiff.
			<5	NS	
			<5	NS	
					Becomes moist and red-brown.
			<5	NS	
10		B-C-2(12.5-13')	<5	NS	Becomes wet.
			<5	NS	SAND (SP); brown-gray (5YR 5/1), wet, loose.
15			<5	NS	
			<5	NS	

B-C-GW
(Water Sample)

Bottom of Boring at 20.0' BGS.

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Portland, Oregon 97201

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-D**

Project Number: **1264-02**
Logged By: K. Kline
Date: September 27, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 13.32'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-D-1(6-12')	<5	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, soft.
					Sandy SILT (ML); brown (10YR 4/3), slightly moist, gravelly, medium stiff.
5			<5	NS	
			<5	NS	
			<5	NS	Clayey SILT (ML); brown and red (5YR 4/3), slightly moist, stiff.
			<5	NS	Becomes moist.
10					
		B-D-2(12.5-13')			Becomes wet.
					Sandy SILT (ML); brown (10YR 4/3), wet, medium stiff.
					Becomes gray.
15					Becomes soft.
			<5	NS	
			<5	NS	
			<5	NS	

B-D-GW
(Water Sample)

Bottom of Boring at 20.0' BGS.

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Fire Training Facilities Investigation Work Plan
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Boring Number: **B-E**

Project Number: **1264-02**
Logged By: K. Kline
Date: September 27, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 8.58'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
		B-E-1(6-12")	<5	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, gravelly, soft.
			<5	NS	Fine SAND (SP); brown (10 YR 5/4), slightly moist, loose.
					— Becomes coarse and moist.
			<5	NS	
5					— Becomes gravelly.
			<5	NS	
		B-E-2(7.5-8')	<5	NS	SILT (ML); brown (10YR 4/3), wet, medium stiff.
					Clayey SILT (ML); dark gray (2.5Y 3/1), moist, soft.
			<5	NS	
10					— Becomes wet.
			<5	NS	
			<5	NS	
					Fine SAND (SP); gray (2.5Y 4/1), wet, medium dense.
			<5	NS	
15					Bottom of Boring at 15.0' BGS.

B-E-GW
(Water Sample)

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Fire Training Facilities Investigation Work Plan
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Portland, Oregon

Boring Number: **B-F**

Project Number: **1264-02**
Logged By: K. Kline
Date: August 29, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 6.65'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-F-1(6-12")	<5	NS	Grass over sandy SILT (ML); brown (10YR 4/3), dry, soft.
					SAND (SP;Fill); gray (2.5Y 4/1), moist, poorly graded, loose.
			<5	NS	
			<5	NS	
5		B-F-2(6-65")	<5	NS	
					Becomes wet, trace glass.
			<5	NS	
					Organic material, trace organic SILT (Fill).
			<5	NS	
					SILT with clay (ML); gray (2.5Y 4/1), moist, medium stiff.
10					
			<5	NS	
					SAND; brown (10YR 5/4), moist, loose.
					SILT with clay (ML); gray (2.5Y 4/1), moist, soft.
			<5	NS	
15					Bottom of Boring at 15.0' BGS.

B-F-GW
(Water Sample)

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Fire Training Facilities Investigation Work Plan
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Portland, Oregon

Boring Number: **B-G**

Project Number: **1264-02**
Logged By: K. Kline
Date: August 29, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 9.80'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-G-1(6-12")	<5	NS	Grass over SILT (ML; Fill); brown (10YR 4/3), dry, soft.
			<5	NS	Silty SAND (SP); brown (10 YR 5/4), dry, loose.
			<5	NS	SAND (SP); brown (10 YR 5/4), slightly moist, loose.
			<5	NS	Becomes moist.
5			<5	NS	
		B-G-2(9-9.5')	<5	NS	Silty CLAY (CL); gray (2.5Y 4/1), moist, medium stiff.
10			<5	NS	Becomes wet, soft.
			<5	NS	Trace wood debris.
15					Bottom of Boring at 15.0' BGS.

B-G-GW
(Water Sample)

Apex Companies, LLC
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Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-H**

Project Number: **1264-02**
Logged By: K. Kline
Date: September 28, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 11.65'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-H-1(6-12')	<5	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, gravel/cobbles, soft.
			<5	NS	Becomes sandy.
			<5	NS	
5					Becomes dark brown.
			<5	NS	
			<5	NS	
					Becomes stiff.
			<5	NS	
10					
					Becomes medium stiff.
		B-H-2(14-14.5')			
15					Sandy SILT (ML); dark brown (10YR 3/2), wet, soft.
			<5	NS	
			<5	NS	
			<5	NS	

B-H-GW
(Water Sample)

Bottom of Boring at 20.0' BGS.

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Fire Training Facilities Investigation Work Plan
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Portland, Oregon

Boring Number: **B-I**

Project Number: **1264-02**
Logged By: K. Kline
Date: September 28, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 5.70'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-1-1(6-12")	<5	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, soft.
			<5	NS	Becomes sandy.
					SAND (SP); brown (10YR 5/4), moist, loose.
5		B-1-2(45-5')	<5	NS	Becomes wet.
			<5	NS	
			<5	NS	
					SILT (ML); dark brown (10YR 3/2), moist, medium stiff.
10			<5	NS	
					Bottom of Boring at 10.0' BGS.
15					

B-1-GW
(Water Sample)

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Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-J**

Project Number: **1264-02**
Logged By: K. Kline
Date: September 28, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 4.66'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-J-1(6-12")	15	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, soft.
			<5	NS	Becomes sandy.
		B-J-2(45-5')	<5	NS	SAND (SP); brown (10YR 5/4), slightly moist, loose. Becomes wet.
			<5	NS	
			<5	NS	Clayey SILT (ML); dark brown (10YR 3/2), moist, medium stiff.
			<5	NS	
					Bottom of Boring at 10.0' BGS.

B-J-GW
(Water Sample)

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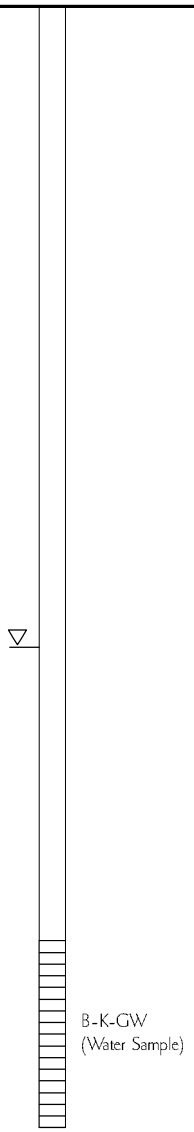
Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-K**

Project Number: **1264-02**
Logged By: K. Kline
Date: September 28, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 9.95'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-K-1(6-12")	<5	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, soft.
			<5	NS	SAND (SP); brown (10YR 5/4), moist, loose.
		B-K-2(3.5-4')			Becomes wet.
			<5	NS	
5			9	NS	
			12	NS	Sandy SILT (ML); gray (2.5Y 4/1), wet, medium stiff.
			<5	NS	
10					No recovery.
15					Bottom of Boring at 15.0' BGS.



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Port of Portland
Portland, Oregon

Boring Number: **B-L**

Project Number: **1264-02**
Logged By: K. Kline
Date: September 28, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 8.40'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-L-1(6-12')	<5	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, soft.
					Becomes sandy.
			<5	NS	SAND (SP); brown (10YE 5/4), slightly moist, loose.
					Becomes moist.
			<5	NS	
5			<5	NS	
			<5	NS	
					SILT (ML); brown and red (5YR 4/3), moist, medium stiff.
		B-L-2(9-9.5')	<5	NS	
10					Sandy SILT (ML); brown (10YR 4/3), wet, soft.
			<5		
					No sand.
			<5		
			<5		SAND (SP); dark gray (2.5Y 3/1), wet, loose.
15					Bottom of Boring at 15.0' BGS.

B-L-GW
(Water Sample)

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Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-M**

Project Number: **1264-02**
Logged By: M. Whitson/K. Kline
Date: October 02, 2017
Site Conditions: Cloudy
Drilling Contractor: Cascade Drilling
Drilling Equipment: Track Sonic
Sampler Type: 4" Core Barrel (DT)
Depth to Water (ATD): --
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
					Coarse angular gravel, imported fill material.
			<5	NS	Sandy GRAVEL (GW); very dark grayish brown (10YR 3/2), slightly moist, well graded, loose, fine to coarse angular gravel, fine to medium grained sand (20%).
5	Limited Recovery (In Bucket)		<5	NS	SAND (SP); dark grayish brown (2.5YR 4/2), slightly moist, poorly graded, loose, fine grained, trace fine gravels, trace silt.
10					
15	Limited Recovery (In Bucket)		<5	NS	Silty SAND (SM); very dark gray (5Y 3/1), moist, poorly graded, loose, 80% very fine graded sand, 20% fines, trace muscovite mica.
			<5	NS	Sandy SILT (ML); very dark gray (5Y 3/1), moist, soft, low plasticity, 60% silts and fines, 40% very fine sand, trace muscovite mica.

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Fire Training Facilities Investigation Work Plan
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Boring Number: **B-M**
Project Number: **1264-02**
Logged By: M. Whitson/K. Kline
Date: October 02, 2017
Site Conditions: Cloudy
Drilling Contractor: Cascade Drilling
Drilling Equipment: Track Sonic
Sampler Type: 4" Core Barrel (DT)
Depth to Water (ATD): --
Surface Elevation: Not Measured
Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
					SILT with CLAY (ML); very dark greenish gray (GLEY1 3/1) (3/10Y). moist, low plasticity, soft to medium stiff, 15-20% clay, 80-85%, silt, trace muscovite grains.
					Becomes mottled with very dark gray.
			<5	NS	
25					
					Trace very fine sand.
			<5	NS	Silty SAND (SP); very dark gray (5Y 3/1), moist, medium dense, poorly graded, 80-85% very fine sand, 15-20% fines, muscovite mica.
30					
					Trace organics, woody debris.
			<5	NS	Very sandy SILT (ML); dark gray (5Y 4/1), moist to wet, low plasticity, soft to medium stiff, 40-50% very fine sand, 50-60% fines.
					Becomes medium stiff, woody debris fragments and organics increase.
					SILT with SAND (ML); dark gray (5Y 4/1), moist, medium stiff to stiff, low plasticity, 15% very fine sand, trace clay.
35					
					Becomes mottled (GLEY1 3/1) very dark greenish gray.
			<5	NS	
					Becomes silt with clay, no very fine sand.
					SAND with SILT (SP); very dark greenish gray (GLEY1 3/5GY), wet, poorly graded, loose to medium dense, very fine to fine grained subangular sand, 5-10% fines, trace coarse grains (medium grained), quartz and dark lithics, trace organics.

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Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-M**
Project Number: **1264-02**
Logged By: M. Whitson/K. Kline
Date: October 02, 2017
Site Conditions: Cloudy
Drilling Contractor: Cascade Drilling
Drilling Equipment: Track Sonic
Sampler Type: 4" Core Barrel (DT)
Depth to Water (ATD): --
Surface Elevation: Not Measured

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	Boring Details and Notes:
					SAND with SILT (SP); very dark gray (GLEY1 3/N), wet, loose to medium dense, poorly graded, well sorted, trace to 5% fines, sub rounded fine grained sand, quartz rich, red and black lithic fragments, weathered micas (muscovite, other).	*NOTE:* Limited recovery due to water bearing zone (40-50).
			<5	NS	— Silt content increases slightly, woody debris.	
45						45
					SILT with SAND (ML); very dark greenish gray (GLEY1 3/10Y), wet, low plasticity, soft to medium stiff, 85% low plastic fines, 15% very fine sand, large wood fragments.	
			<5	NS		
50						50
					— Sand content increases, same as above.	
			<5	NS		
55						55
					SAND (SP); dark gray (5Y 4/1), slightly moist, poorly graded, loose to medium dense, well sorted, fine to medium grained subangular sand, quartz, feldspars, red and black lithic fragments, trace micas (biotite, muscovite), trace woody fragments/debris, 20-25% lithic fragments, 75% quartz.	
			<5	NS	— Lens of dense sand, same as above.	
						B-M-1 (Water Sample)

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Boring Number: **B-M**
Project Number: **1264-02**
Logged By: M. Whitson/K. Kline
Date: October 02, 2017
Site Conditions: Cloudy
Drilling Contractor: Cascade Drilling
Drilling Equipment: Track Sonic
Sampler Type: 4" Core Barrel (DT)
Depth to Water (ATD): --
Surface Elevation: Not Measured

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	Boring Details and Notes
					Becomes wet, loose. No apparent woody debris or organic material.	
			<5	NS		
65					Trace coarse grains, subangular to angular, trace green mineral.	65
			<5	NS		
70					Becomes subangular, fewer micaceous minerals, fine to medium grained, no coarse grains, becomes dark gray.	70
			<5	NS		*NOTE:* With outer casing, sands are heaving. Attempt cleanout runs.
75						75
			<5	NS		
					Larger mica grains present.	

Bottom of Boring at 80.0' BGS.

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Fire Training Facilities Investigation Work Plan
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Portland, Oregon

Boring Number: **B-N**

Project Number: **1264-02**
Logged By: K. Kline
Date: August 29, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 7.60'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-N-1(6-12")	<5	NS	Grass over sandy SILT (ML); brown (10YR 4/3), dry, soft.
			<5	NS	SAND (SP); brown (10YR 5/4), slightly moist, loose.
		B-N-2(3.5-4')	<5	NS	Becomes moist.
5					
			<5	NS	Becomes wet.
			<5	NS	
			<5	NS	
10					Bottom of Boring at 10.0' BGS.
15					

B-N-GW
(Water Sample)

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Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-O**

Project Number: **1264-02**
Logged By: K. Kline
Date: August 29, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 12.75'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
		B-O-1(0-1')	252	NS	Grass over SILT (Fill) with gravel (ML); brown (10YR 4/3), dry, soft.
					Becomes hard.
			303	LS	SAND (SP); light brown (10YR 6/4), slightly moist, loose.
		B-O-2(3.5-4')	26	NS	
5			8	NS	
					Sandy SILT (ML); brown (10YR 4/3), dry, soft.
			<5	NS	Silty CLAY (CL); dark brown (10YR 2/3), moist, medium stiff.
			<5	NS	
10			<5	NS	
		B-O-3(11.5-12')	<5	NS	Sandy SILT (ML); brown (10YR 4/3), dry, soft.
			<5	NS	CLAY (CL); dark brown (10YR 2/3), wet, soft.
			<5	NS	
15					Bottom of Boring at 15.0' BGS.

B-O-GW
(Water Sample)

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Fire Training Facilities Investigation Work Plan
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Portland, Oregon

Boring Number: **B-P**

Project Number: **1264-02**
Logged By: K. Kline
Date: August 28, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 5.40'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-P-1(6-12")	<5	NS	Grass over SILT (ML); brown (10YR 4/3), dry, soft.
			<5	NS	SILT with clay (ML); brown and gray (2.5Y 4/3), slightly moist, medium stiff, trace gravels.
		B-P-2(3.5-4')	<5	NS	SAND (SP); brown (10YR 5/4), moist, medium dense. — Becomes gray.
5					CLAY with sand (CL); gray (2.5Y 4/1), moist, stiff.
			<5	NS	CLAY; gray (2.5Y 4/1), moist, stiff.
			<5	NS	— Becomes medium stiff.
10					Bottom of Boring at 10.0' BGS.
15					

B-P-GW
(Water Sample)

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Fire Training Facilities Investigation Work Plan
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Portland, Oregon

Boring Number: **B-Q**

Project Number: **1264-02**
Logged By: K. Kline
Date: August 28, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 7.03'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
0	Hand Auger	B-Q-1(6-12")	<5	NS	Grass over silty SAND (SP); brown (10YR 5/4), slightly moist, loose.
					GRAVEL (Fill) with sand; gray (10YR 4/1), dry, medium dense.
					SAND (SP); light brown (10YR 5/3), dry, loose.
			<5	NS	
5					SAND (Fill) with gravel (SP); light brown (10YR 5/3), dry, loose.
		B-Q-2(6.5-7')	<5	NS	
					SAND (SP); dark brown (10YR 3/2), moist, medium dense.
			<5	NS	
10					Bottom of Boring at 10.0' BGS.
15					

B-Q-GW
(Water Sample)

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-R**

Project Number: **1264-02**
Logged By: K. Kline
Date: August 28, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 7.00'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
		B-R-1(6-12")	<5	NS	Grass over SILT (Fill) with cobbles (ML); light brown (10YR 5/4), dry, soft.
			<5	NS	
			<5	NS	SAND (SP); light gray (10YR 6/1), slightly moist, loose.
5		B-R-2(6-6.5')	<5	NS	
			<5	NS	Fine SAND (SP); brown (10YR 5/4), wet, medium dense.
			<5	NS	Wood debris.
					Becomes gray.
10					Bottom of Boring at 10.0' BGS.
15					

B-R-GW
(Water Sample)

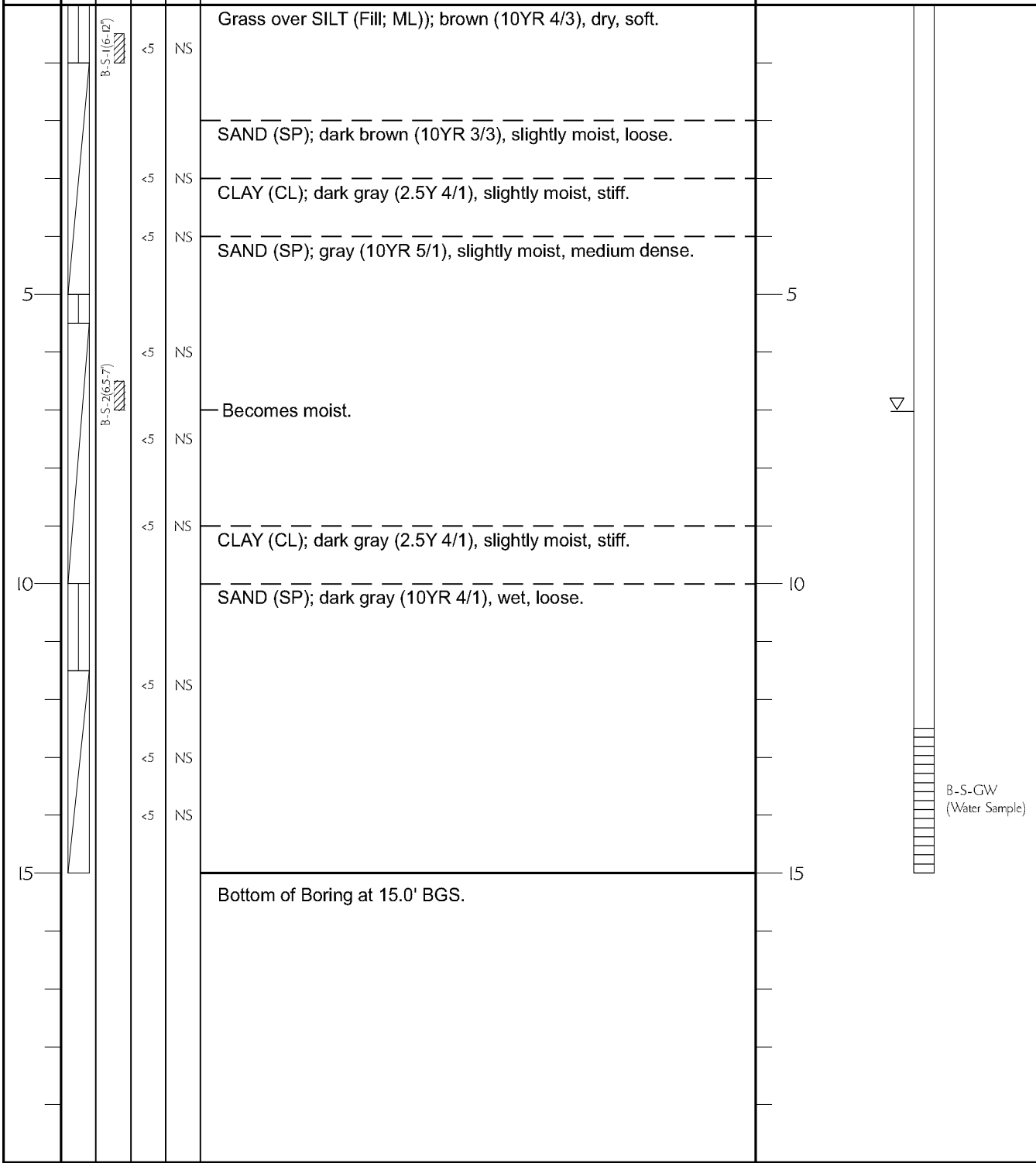
Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-S**

Project Number: **1264-02**
Logged By: K. Kline
Date: August 28, 2017
Site Conditions: Sunny, Hot
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 7.03'
Surface Elevation: Not Measured

Boring Details and Notes:



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-T**

Project Number: **1264-02**
Logged By: K. Kline
Date: August 29, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 7.71'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
		B-T-1(6-12")	<5	NS	Grass surface over SILT (Fill) with gravel (ML); brown (10YR 5/4), dry, soft.
			<5	NS	
			<5	NS	Clayey SILT (ML); brown (10YR 5/4), slightly moist, stiff.
5			<5	NS	SAND (SP); brown (10YR 4/3), slightly moist, medium dense.
		B-T-2(6.5-7')	<5	NS	
			<5	NS	Becomes wet.
			<5	NS	
10			<5	NS	
			<5	NS	Becomes gray.
15			<5	NS	Bottom of Boring at 15.0' BGS.

B-T-GW
(Water Sample)

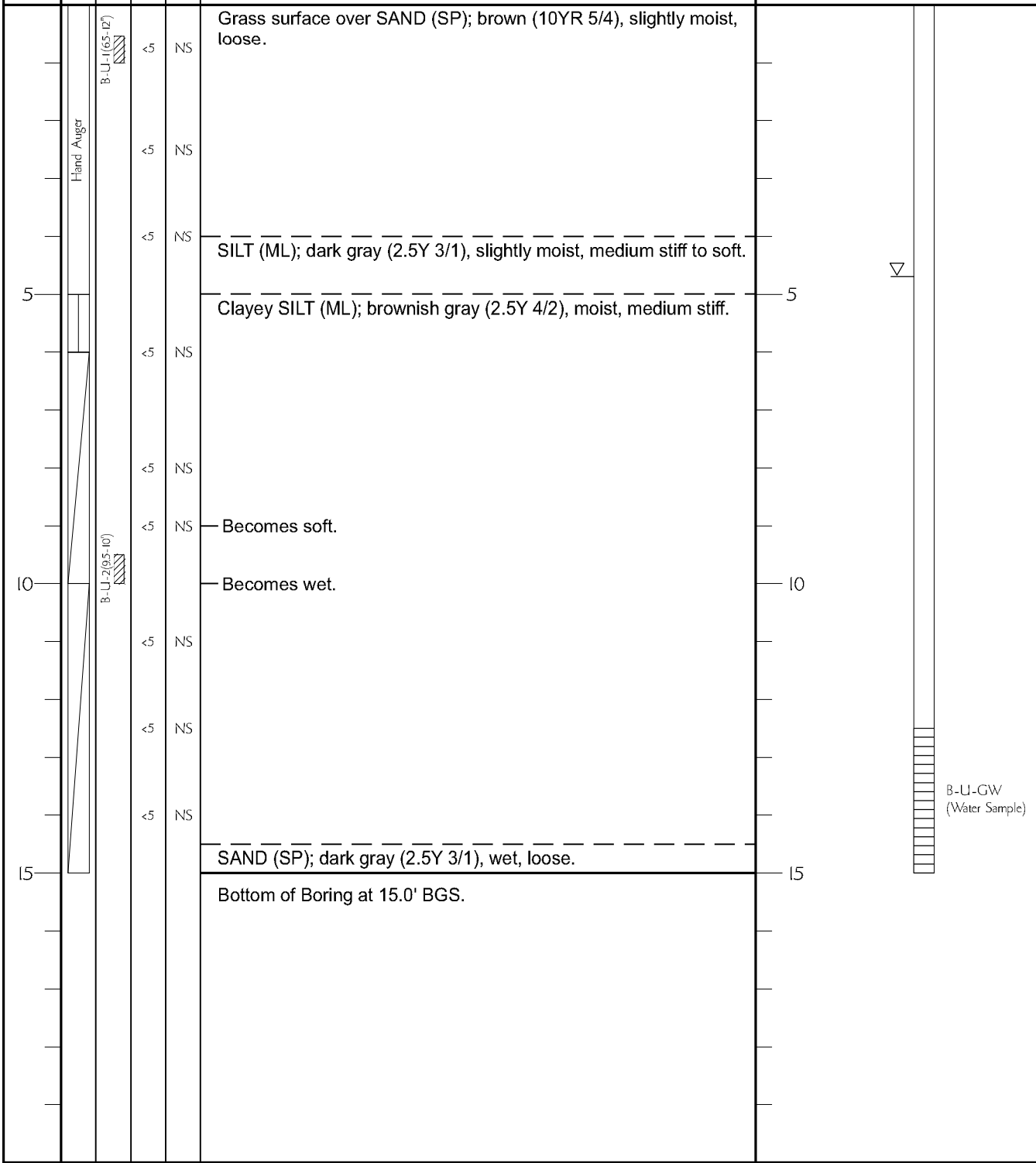
Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-U**

Project Number: **1264-02**
Logged By: K. Kline
Date: August 29, 2017
Site Conditions: Sunny
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 4.70'
Surface Elevation: Not Measured

Boring Details and Notes:



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-V**

Project Number: **1264-02**
Logged By: K. Kline, J. Munsey
Date: September 29, 2017
Site Conditions: Rain
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 15.51'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
0	Hand Auger	B-V-1(6-12")	<5	NS	Dirt parking lot surface over silty SAND with GRAVEL Fill (SP); brown (10YR 5/4), moist, loose.
			<5	NS	Sandy SILT Fill (ML); brown (10YR 4/3), moist, gravelly, medium stiff.
			<5	NS	
5			<5	NS	
			<5	NS	SILT (ML); brown (10YR 4/3), slightly moist, stiff.
					Black organics.
			<5	NS	SILT (ML); green-brown with medium brown mottling (GLEY1 3/1), moist, non-plastic, micaceous, medium stiff.
10			<5	NS	
			44	NS	
		B-V-2(14.5-15')	74	NS	
15		B-V-2(16-16.5')	64	NS	Fine SAND with silt (SP); light brown (10YR 5/4), wet, micaceous, medium stiff.
			31	NS	
			22	NS	

▽ B-V-GW (Water Sample)

Bottom of Boring at 20.0' BGS.

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-W**

Project Number: **1264-02**
Logged By: K. Kline
Date: September 29, 2017
Site Conditions: Rain
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 8.90'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-W-1(6-12')	<5	NS	Grass over SILT (ML); brown (10YR 4/3), slightly moist, soft.
			<5	NS	Becomes sandy.
			<5	NS	
5			<5	NS	SILT (ML); brown and black mottled (10YR 2/1), slightly moist, medium stiff.
		B-W-2(9.5-10')	<5	NS	
			<5	NS	Becomes brown and orange mottled.
10			<5	NS	SILT (ML); brown (10YR 4/3), wet, soft.
			<5	NS	
			<5	NS	
			<5	NS	
15					Bottom of Boring at 15.0' BGS.

B-W-GW
(Water Sample)

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Fire Training Facilities Investigation Work Plan
Port of Portland
Portland, Oregon

Boring Number: **B-X**

Project Number: **1264-02**
Logged By: K. Kline, J. Munsey
Date: September 29, 2017
Site Conditions: Rain
Drilling Contractor: Steadfast Drilling
Drilling Equipment: Direct Push
Sampler Type: --
Depth to Water (ATD): 16.58'
Surface Elevation: Not Measured

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description
	Hand Auger	B-X-1(6-12')			GRAVEL surface Fill.
					SILT (ML); medium brown, slightly moist, low plasticity, micaceous.
			<5	NS	Fine SAND with silt (SP); light brown, slightly moist, poorly graded, loose.
			<5	NS	
			<5	NS	
5			<5	NS	
			<5	NS	
					SILT (ML); light brown (10YR 5/3), moist, medium plasticity, poorly graded.
			<5	NS	
10			<5	NS	Some fine SAND present, micaceous.
			<5	NS	
			<5	NS	
		B-X-2(14-14.5')	<5	NS	
15					SAND (SP); medium brown (10YR 4/3), well graded, well rounded, loose.
			<5	NS	
			<5	NS	
			<5	NS	

▽

B-X-GW
(Water Sample)

Bottom of Boring at 20.0' BGS.

Appendix D

Laboratory Quality Assurance/Quality Control Review and Analytical Laboratory Reports

Appendix D – Analytical Laboratory Reports and Quality Assurance / Quality Control Review

1.0 Introduction

This appendix documents the results of a quality assurance/quality control (QA/QC) review of the analytical data for soil and groundwater samples collected at the Portland International Airport Fire Training Facilities, Portland, Oregon. Samples from the Site were analyzed by Apex Laboratories of Tigard, Oregon, Vista Analytical Laboratory of El Dorado Hill, California, and TestAmerica of West Sacramento, California. Copies of the analytical laboratory reports are included in this appendix, referenced in Table 1 as follows:

Table 1: Analytical Laboratory Reports

Report	Report Date	Sampling Event
A7J0065	October 20, 2017	Site Investigation
1701173	September 26, 2017	Site Investigation
1701175	October 18, 2017	Site Investigation
1701384	October 27, 2017	Site Investigation
1701385	October 27, 2017	Site Investigation
1701392	October 25, 2017	Site Investigation
1701412	October 30, 2017	Site Investigation
J32175	October 30, 2017	Site Investigation

2.0 Data Validation

The QA review outlines the applicable quality control criteria utilized during the data review process, as well as any deviations from those criteria. Examination and validation of the laboratory summary reports include:

- Analytical preparation and quantitation methods
- Analytical method holding times
- Sample handling
- Chain of custody handling
- Detection and reporting limits
- Analyte identification and quantitation
- Method blank, trip blank and equipment blank detections
- Laboratory control samples, matrix spikes, surrogates and on-going precision/recovery (OPR) to assess laboratory accuracy

- Laboratory control sample duplicates and laboratory duplicates to assess laboratory precision
- Field duplicates to assess sampling and laboratory precision

The QA/QC review did not include a review of raw data.

This QA/QC review documents the relationship between analytical findings and data quality objectives based on precision and accuracy. It also summarizes possible error or bias and the effect on data quality and usability.

The laboratory quality control (QC) samples provided in data packages were used to evaluate laboratory contamination or background interferences, sample preparation efficiency, instrumentation performance and sample matrix interferences. The QC samples provided by the analytical laboratories include: method blanks, laboratory control samples (LCS/LCSD), ongoing precision and accuracy (OPR), matrix spikes (MS) and laboratory duplicates. Surrogates and labeled standards were also analyzed to assess sample preparation efficiency and matrix interferences.

2.1 Data Qualifiers

Any data that is found to have possible bias or error was qualified and flagged. The following are flags used in this QA/QC review and data tables.

Table 2: Qualifier Flags

J	Data results are estimated values. Concentrations associated with this qualifier are approximate.
J+	Data results are estimated values and may be biased high.
UJ	The not detected result is estimated at the specified reporting limit.

3.0 Analytical Methods

Chemical analyses consisted of the following:

- Volatile organic compounds (VOC) by U.S. Environmental Protection Agency (EPA) method 8260C
- Diesel and oil by NWTPH-Dx with silica gel cleanup
- Polychlorinated biphenyls (PCBs) by EPA method 8082A
- Polyaromatic hydrocarbons (PAHs) by EPA method 8270D with selective ion monitoring (SIM)

- Total and dissolved arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver by EPA method 6020A
- Per- and polyfluorinated alkyl substances (PFC) by modified EPA method 537
- Total oxidizable precursor (TOP) assay, pre- and post- treatment analysis of PFCs

4.0 Data Quality Assurance Review

The general QA objectives for this project were to develop and implement procedures for obtaining, evaluating, and confirming the usability of data of a specified quality. To collect such information, analytical data must have an appropriate degree of accuracy and reproducibility, samples collected must be representative of actual field conditions, and samples must be collected and analyzed using unbroken chain-of-custody procedures.

Reporting limits and analytical results were compared to cleanup and screening levels for each parameter in the matrix of concern. Precision, accuracy, completeness, and comparability parameters used to indicate data quality are defined below.

4.1 Holding Times and Sample Receipt

The holding time is the minimum amount of time the sample can be stored before analytes start to degrade and are not representative of initial sampling concentrations. Holding times are defined by analytical methods.

The 14-day holding time was violated for analysis of PFHxA, PFHxS and PFOS in samples B-T-GW, B-O-GW, B-U-GW, B-N-GW, B-G-GW, B-F-GW, B-S-GW, B-R-GW, B-Q-GW, B-P-GW, MH-1, MH-2, OF1N-NW and SW-1. Samples were re-extracted since the initial extraction and analysis produced detectable concentrations of PFOS, PFHxS and PFHxA in the method blank. Re-extraction was performed to mitigate possible contamination and elevated results for these analytes. Due to the stability of these analytes within the matrix and sample storage conditions at the laboratory, changes in sample concentration because of this holding time violation are not likely.

Samples were received intact and unbroken upon receipt by the analytical laboratories. Groundwater samples were received on ice and without headspace in VOA sampling containers. Samples with an acid preservative were pH checked upon arrival by the laboratory for method compliance.

All chain-of-custodies were appropriately relinquished by Apex Companies personnel and received by the designated analytical laboratory. They were filled out with the correct sample ID, sampling date, sampling time and analyses requested. Discrepancies found between the bottles and the chain of custodies were

resolved through Apex Companies project management and record of that communication is available within the laboratory reports.

4.2 Reporting Limits and Detection Limits

Reporting limits are the lowest concentration an instrument is capable of accurately detecting an analyte. They are determined by the laboratory and are based on instrumentation capabilities, the matrix of field samples, sample preparation procedures and EPA suggested reporting limits.

The method detection limit (MDL) is the minimum concentration that an analyte can be reported where it is 99% confident that the analyte is greater than zero. Any analyte that is reported between the method detection limit and the reporting limit is an estimated value and "J" flagged accordingly.

In most cases, detection limits were below promulgated screening values. Reporting limits for perfluoroalkyl substances (PFAS) were consistent with historical data.

4.3 Analyte Identification and Quantitation

For analysis of PFAS, the recovery of some labeled standards was outside of control limits. Labeled standards are spiked directly into samples before preparation to determine matrix interferences and concentration of analytes. Recovery of these labeled standards automatically corrects sample concentration due to isotope dilution. Data quality is not considered affected if the signal-to-noise ratio is greater than 10:1, which was achieved. No data is flagged in the data table.

The recovery of labeled standard M2-4:2 FTS for the post-treatment analyses in report J32175 was at 0%. This standard is added to samples before oxidation and monitors the oxidations efficiency. A 0% recovery indicates 100% complete oxidation of the M2-4:2 FTS standard. This standard is not used to quantitate any target analytes.

4.4 Method Blanks

A method - or laboratory - blank is a quality control sample prepared by the laboratory from an analyte-free matrix and analyzed in an analytical batch along with environmental and other QC samples. It is used to assess laboratory contamination or background interferences. There were no detections of analytes in the method blanks except for PFOS in report 1701173. PFOS was detected above the reporting limit at 1.73 nanograms per liter (ng/L). Groundwater samples associated with this QC batch (B7I0079) that concentrations of PFOS less than ten times the method blank concentration are "J+" flagged as estimated values with a possible high bias. If concentrations of PFOS within the samples is greater than ten times the method blank concentration, any possible laboratory contamination is considered insignificant compared to concentrations found in the samples.

The method blank results for post-treatment TOP assay included a detection of PFBA above the reporting limit. This detection is a result of the oxidation of M2-4:2 FTS, added to the sample by the laboratory before preparation to track the efficiency of the oxidation preparation performed. This compound was also added to MW-4 to track oxidation efficiency and the resulting amount of PFBA generated is not considered to significantly increase the amount of PFBA in the sample. See Table 3.

4.5 Trip Blank

A trip blank is an analyte-free matrix that is collected in the laboratory and is shipped along with the sample bottles to the field, kept with the soil and groundwater samples during collection, and shipped back to the laboratory with the field samples. The trip blank is analyzed for volatile organic compounds (VOCs) of interest, along with the primary samples, to assess if detected contaminants may have been the result of contamination of the samples during transport or storage. One trip blank was analyzed and no VOC analytes were detected.

4.6 Equipment Blank

An equipment blank is a sample of analyte-free water poured over or through decontaminated field sampling equipment during a sampling event. Equipment blanks assess contamination from the total sampling, sample preparation, and measurement process when decontaminated sampling equipment is used to collect samples. Two equipment blanks were analyzed for PFAS, one for each groundwater sampling method used. The equipment blank collected 9/26/2017 had concentrations of PFHxS, PFOA and PFOS above the reporting limit. Affected groundwater samples include B-A-GW, B-B-GW, B-C-GW, B-D-GW, B-L-GW, B-R-GW, B-S-GW, and B-W-GW; where concentrations of PFOA and/or PFOS were less than ten times the equipment blank concentration. Sample data is "J+" flagged as estimated values with a possible high bias.

4.7 Accuracy

Accuracy compares the accepted reference concentration of an analyte to the concentration determined analytically. Accuracy is measured as a percent recovery. This recovery must be within a certain range - or control limit - for the data in an analytical batch to be considered acceptable. The analytical laboratory provides quality control samples and surrogates to help determine the accuracy and acceptability of the data reported. These quality control samples and surrogates are discussed below.

4.7.1 Laboratory Control Samples/Ongoing Precision and Recovery (OPR)

Laboratory control samples (LCS) and laboratory control duplicate samples (LCSD) were analyzed by the laboratory to assess the accuracy of the analytical methods. The LCS and LCSDs are prepared from an analyte-free matrix that is spiked with known levels of compounds of concern. The concentrations are measured and compared to the known spiked levels; expressed as a percent recovery. This percent recovery

must be within method or laboratory defined control limits for data to be considered acceptable. Ongoing precision and recovery (OPR) quality control samples were analyzed in place of LCS/LCSDs for PFAS analysis.

Chloromethane and bromomethane were recovered above the upper control limit for batch 7100417. Groundwater samples associated with these batches did not have detectable concentrations of chloromethane or bromomethane and the high recovery is due to the analyte not meeting calibration criteria; no data were flagged.

The recovery for PFTrDA was 9% above the upper control limit in report 1701392. The associated sediment sample (OF-1N-Mix) did not have detectable concentrations for PFTrDA so no data were flagged.

For the post-treatment TOP assay analysis, the LCS/LCSD had a recovery of PFBA, PFPeA, PFHxA, PFHpA and PFOA above the upper control limit. Additionally, FOSA, 6:2 FTS and 8:2 FTS were not recovered at all within the LCS/LCSD. Sample data is accepted since FOSA, 6:2 FTS and 8:2 FTS are oxidizable precursors to perfluoroinated carboxylic acids (PFCAs) like PFPeA, PFHxA, PFHpA and PFOA. Because the LCS/LCSD was spiked with target analytes and then oxidized, these precursors were transformed into controlled PFCAs resulting in elevated recoveries. See Table 3 below for possible end products from LCS/LCSD precursors.

Table 3: PFCA Precursors and End Products after Oxidation

PFCA Precursor	Possible End Products
FOSA	PFOA (C8)
6:2 FTS	PFHxA (C6)
	PFPeA (C5)
	PFBA (C4)
8:2 FTS	PFOA (C8)
	PFHpA (C7)
	PFHxA (C6)
	PFPeA (C5)
	PFBA (C4)
M2-4:2 FTS	PFBA (C4)

4.7.2 Matrix Spikes

A matrix spike QC sample is used to assess the performance of the analytical method by determining potential matrix interferences. Matrix spike (MS) and matrix spike duplicate (MSD) analyses are performed on one environmental sample per analytical batch. A matrix spike sample uses an environmental sample that is spiked with known concentrations of analytes of interest. The matrix spike is then prepared and analyzed with

the same analytical procedures as environmental samples in the analytical batch. The resulting concentration of the matrix spike is then compared to the known - or true - values plus the non-spiked environmental sample concentration. This comparison is expressed as a percent recovery.

Cis-1,3-dichloropropene was recovered below the lower control limit in report A7J0065. This analyte may be biased low in the original source sample (B-J-GW) and the result is "UJ" flagged in the data table as an estimated reporting limit.

4.7.3 Surrogates

Surrogates are organic compounds that are similar in chemical composition to the analytes of interest but are not likely to be found in the environment. They are spiked at a known concentration into environmental and batch QC samples prior to sample preparation and analysis. Surrogate recoveries for environmental samples are used to evaluate matrix interference, sample preparation efficiency and analysis performance on a sample-specific basis. Surrogate percent recoveries for quality control samples and groundwater samples were within control criteria.

4.8 Precision

Precision is measured by how close values of duplicate analyses are to each other. These duplicate analyses are prepared from separate aliquots of the same sample and are analyzed at the same (or similar) time. Precision in the field ensures that samples taken are representative of field concentrations; this is demonstrated by field duplicates. Analytical precision is the ability of the laboratory to reproduce results that are similar to each other; this is measured through duplicate analysis of environmental and batch QC samples. Precision is estimated by the relative percent difference (RPD) between the original analysis and the duplicate analysis.

4.8.1 Laboratory Control Samples

The analytical batch LCS concentration of an analyte is compared to the LCSD concentration of the same analyte. The relative percent difference (RPD) is calculated from these two concentrations; which must be below a certain percentage to be considered acceptable. RPD values between LCS and LCSD pairs in QC batches were within the control limits.

4.8.2 Laboratory Duplicate

A laboratory duplicate is a second analysis of an environmental sample received by the laboratory, which serves as an internal check on laboratory quality as well as potential variability of the sample matrix. The laboratory duplicate is analyzed and compared to the primary sample analysis to assess the precision of the

analytical method. This comparison can be expressed by the RPD between the original and duplicate samples. RPD values were within control limits as defined by the laboratory.

4.8.3 Field Duplicate

A field duplicate is a second field sample collected from a selected sample location. Field duplicate samples serve as a check on laboratory precision, sampling quality, as well as potential variability of the sample matrix. The field duplicate is analyzed and compared to the original sample to assess precision. This comparison can be expressed by the RPD between the original and duplicate samples. Field duplicate samples are only controlled if the reported result is greater than 5 times the reporting limit. Field duplicates were collected from B-I-GW and MW-6 and RPD values were below the 30% control limit.

5.0 Conclusion

In conclusion, the QA objectives have been met and the data are of sufficient quality for use in this project.

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, November 8, 2017

Ashleigh Fines
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

RE: POP - Fire Training Pits / 1264-03

Enclosed are the results of analyses for work order A7J0065, which was received by the laboratory on 10/3/2017 at 2:12:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

Darrell Auvil, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMENDED REPORT

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-A-GW	A7J0065-01	Water	09/27/17 13:45	10/03/17 14:12
B-D-GW	A7J0065-02	Water	09/27/17 15:30	10/03/17 14:12
B-I-GW	A7J0065-03	Water	09/28/17 12:05	10/03/17 14:12
B-I-GW DUP	A7J0065-04	Water	09/28/17 12:05	10/03/17 14:12
B-J-GW	A7J0065-05	Water	09/28/17 10:25	10/03/17 14:12
B-O (1')	A7J0065-06	Soil	09/29/17 13:44	10/03/17 14:12
B-O (3')	A7J0065-07	Soil	09/29/17 13:42	10/03/17 14:12
B-O (4.5')	A7J0065-08	Soil	09/29/17 13:40	10/03/17 14:12
B-O-E (1')	A7J0065-09	Soil	09/29/17 13:15	10/03/17 14:12
Trip Blank	A7J0065-10	Water	10/03/17 00:00	10/03/17 14:12

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL CASE NARRATIVE

Work Order: A7J0065

Amended Report Revision 1:

Reporting the Method Detection Limits (MDL)-

This report supersedes all previous reports.

The final report has been amended to report all data to the method detection limits (MDLs).

Darrell Auvil
Project Manager
11/8/2017

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-A-GW (A7J0065-01)			**Matrix: Water**		**Batch: 7100464**			
Diesel	ND	0.0943	0.189	mg/L	1	10/05/17 19:45	NWTPH-Dx/SG	
Oil	ND	0.189	0.377	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 93 %*	*Limits: 50-150 %*	"	"	"	
B-D-GW (A7J0065-02)			**Matrix: Water**		**Batch: 7100464**			
Diesel	ND	0.0952	0.190	mg/L	1	10/05/17 20:08	NWTPH-Dx/SG	
Oil	ND	0.190	0.381	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 106 %*	*Limits: 50-150 %*	"	"	"	
B-I-GW (A7J0065-03)			**Matrix: Water**		**Batch: 7100464**			
Diesel	ND	0.0943	0.189	mg/L	1	10/05/17 20:31	NWTPH-Dx/SG	
Oil	ND	0.189	0.377	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 102 %*	*Limits: 50-150 %*	"	"	"	
B-J-GW (A7J0065-05)			**Matrix: Water**		**Batch: 7100464**			
Diesel	ND	0.0935	0.187	mg/L	1	10/05/17 20:53	NWTPH-Dx/SG	
Oil	ND	0.187	0.374	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*	"	"	"	

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Darrell Auvil, Project Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-A-GW (A7J0065-01RE1)			**Matrix: Water**		**Batch: 7100417**			
Acetone	ND	10.0	20.0	ug/L	1	10/04/17 11:49	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	"	"	"	"	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon disulfide	ND	5.00	10.0	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	10.0	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	ND	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
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503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-A-GW (A7J0065-01RE1)			**Matrix: Water**		**Batch: 7100417**			
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	5.00	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	1.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	ND	0.200	0.400	"	"	"	"	
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 113 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*99 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*96 %*	*Limits: 80-120 %*	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-D-GW (A7J0065-02RE1)			**Matrix: Water**		**Batch: 7100417**			
Acetone	ND	10.0	20.0	ug/L	1	10/04/17 12:16	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	"	"	"	"	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon disulfide	ND	5.00	10.0	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	10.0	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	ND	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-D-GW (A7J0065-02RE1)			**Matrix: Water**		**Batch: 7100417**			
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	5.00	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	1.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	ND	0.200	0.400	"	"	"	"	
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 113 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*98 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*95 %*	*Limits: 80-120 %*	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-I-GW (A7J0065-03RE1)			**Matrix: Water**		**Batch: 7100417**			
Acetone	ND	10.0	20.0	ug/L	1	10/04/17 12:43	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	"	"	"	"	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon disulfide	ND	5.00	10.0	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	10.0	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	ND	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-I-GW (A7J0065-03RE1)			**Matrix: Water**		**Batch: 7100417**			
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	5.00	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	1.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	ND	0.200	0.400	"	"	"	"	
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 114 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*99 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*96 %*	*Limits: 80-120 %*	"	"	"	

Apex Laboratories

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Darrell Auvil, Project Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-I-GW DUP (A7J0065-04)			**Matrix: Water**		**Batch: 7100417**			
Acetone	ND	10.0	20.0	ug/L	1	10/04/17 13:10	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	"	"	"	"	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon disulfide	ND	5.00	10.0	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	10.0	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	ND	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-I-GW DUP (A7J0065-04)			**Matrix: Water**		**Batch: 7100417**			
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	5.00	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	1.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	ND	0.200	0.400	"	"	"	"	
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 114 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*99 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*96 %*	*Limits: 80-120 %*	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-J-GW (A7J0065-05)			**Matrix: Water**		**Batch: 7100417**			
Acetone	ND	10.0	20.0	ug/L	1	10/04/17 14:31	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	"	"	"	"	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon disulfide	ND	5.00	10.0	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	10.0	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	ND	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-J-GW (A7J0065-05)			**Matrix: Water**		**Batch: 7100417**			
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	Q-42
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	5.00	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	1.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	ND	0.200	0.400	"	"	"	"	
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 114 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*98 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*97 %*	*Limits: 80-120 %*	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Trip Blank (A7J0065-10)			**Matrix: Water**		**Batch: 7100417**			
Acetone	ND	10.0	20.0	ug/L	1	10/04/17 10:55	EPA 8260C	
Acrylonitrile	ND	1.00	2.00	"	"	"	"	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon disulfide	ND	5.00	10.0	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	10.0	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	ND	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Trip Blank (A7J0065-10)			**Matrix: Water**		**Batch: 7100417**			
2,2-Dichloropropane	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	5.00	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	1.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	ND	0.200	0.400	"	"	"	"	
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 112 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*99 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*95 %*	*Limits: 80-120 %*	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-I-GW (A7J0065-03)			**Matrix: Water**		**Batch: 7100445**			**C-07**
Aroclor 1016	ND	0.0472	0.0943	ug/L	1	10/05/17 10:22	EPA 8082A	
Aroclor 1221	ND	0.0472	0.0943	"	"	"	"	
Aroclor 1232	ND	0.0472	0.0943	"	"	"	"	
Aroclor 1242	ND	0.0472	0.0943	"	"	"	"	
Aroclor 1248	ND	0.0472	0.0943	"	"	"	"	
Aroclor 1254	ND	0.0472	0.0943	"	"	"	"	
Aroclor 1260	ND	0.0472	0.0943	"	"	"	"	
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 58-120 %*	"	"	"	
B-J-GW (A7J0065-05RE1)			**Matrix: Water**		**Batch: 7100445**			**C-07**
Aroclor 1016	ND	0.0472	0.0943	ug/L	1	10/05/17 14:09	EPA 8082A	
Aroclor 1221	ND	0.0472	0.0943	"	"	"	"	
Aroclor 1232	ND	0.0472	0.0943	"	"	"	"	
Aroclor 1242	ND	0.0472	0.0943	"	"	"	"	
Aroclor 1248	ND	0.0472	0.0943	"	"	"	"	
Aroclor 1254	ND	0.0472	0.0943	"	"	"	"	
Aroclor 1260	ND	0.0472	0.0943	"	"	"	"	
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 58-120 %*	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-I-GW (A7J0065-03)			**Matrix: Water**		**Batch: 7100412**			
Acenaphthene	ND	0.0189	0.0377	ug/L	1	10/06/17 02:04	EPA 8270D (SIM)	
Acenaphthylene	ND	0.0189	0.0377	"	"	"	"	
Anthracene	ND	0.0189	0.0377	"	"	"	"	
Benz(a)anthracene	ND	0.0189	0.0377	"	"	"	"	
Benzo(a)pyrene	ND	0.0189	0.0377	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0189	0.0377	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0189	0.0377	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0189	0.0377	"	"	"	"	
Chrysene	ND	0.0189	0.0377	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0189	0.0377	"	"	"	"	
Dibenzofuran	ND	0.0189	0.0377	"	"	"	"	
Fluoranthene	ND	0.0189	0.0377	"	"	"	"	
Fluorene	ND	0.0189	0.0377	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0189	0.0377	"	"	"	"	
1-Methylnaphthalene	ND	0.0377	0.0755	"	"	"	"	
2-Methylnaphthalene	ND	0.0377	0.0755	"	"	"	"	
Naphthalene	ND	0.0377	0.0755	"	"	"	"	
Phenanthrene	ND	0.0189	0.0377	"	"	"	"	
Pyrene	ND	0.0189	0.0377	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*95 %*	*Limits: 50-133 %*	"	"	"	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-J-GW (A7J0065-05)			**Matrix: Water**		**Batch: 7100412**			
Acenaphthene	ND	0.0190	0.0381	ug/L	1	10/06/17 02:30	EPA 8270D (SIM)	
Acenaphthylene	ND	0.0190	0.0381	"	"	"	"	
Anthracene	ND	0.0190	0.0381	"	"	"	"	
Benz(a)anthracene	ND	0.0190	0.0381	"	"	"	"	
Benzo(a)pyrene	ND	0.0190	0.0381	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0190	0.0381	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0190	0.0381	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0190	0.0381	"	"	"	"	
Chrysene	ND	0.0190	0.0381	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0190	0.0381	"	"	"	"	
Dibenzofuran	ND	0.0190	0.0381	"	"	"	"	
Fluoranthene	ND	0.0190	0.0381	"	"	"	"	
Fluorene	ND	0.0190	0.0381	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0190	0.0381	"	"	"	"	
1-Methylnaphthalene	ND	0.0381	0.0762	"	"	"	"	
2-Methylnaphthalene	ND	0.0381	0.0762	"	"	"	"	
Naphthalene	ND	0.0381	0.0762	"	"	"	"	
Phenanthrene	ND	0.0190	0.0381	"	"	"	"	
Pyrene	ND	0.0190	0.0381	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 50-133 %*	"	"	"	

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-I-GW (A7J0065-03)			**Matrix: Water**					
Batch: 7100686								
Arsenic	**7.82**	0.500	1.00	ug/L	1	10/13/17 14:54	EPA 6020A	
Barium	**52.6**	0.500	1.00	"	"	"	"	
Chromium	**3.04**	0.500	1.00	"	"	"	"	
Lead	**1.82**	0.100	0.200	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Selenium	ND	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
B-I-GW (A7J0065-03RE1)			**Matrix: Water**					
Batch: 7100686								
Cadmium	**0.100**	0.0400	0.200	ug/L	1	10/16/17 13:30	EPA 6020A	J
B-J-GW (A7J0065-05)			**Matrix: Water**					
Batch: 7100686								
Arsenic	**7.22**	0.500	1.00	ug/L	1	10/13/17 14:57	EPA 6020A	
Barium	**83.5**	0.500	1.00	"	"	"	"	
Chromium	**11.0**	0.500	1.00	"	"	"	"	
Lead	**11.7**	0.100	0.200	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Selenium	ND	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
B-J-GW (A7J0065-05RE1)			**Matrix: Water**					
Batch: 7100686								
Cadmium	**0.711**	0.0400	0.200	ug/L	1	10/16/17 13:33	EPA 6020A	

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-I-GW (A7J0065-03)			**Matrix: Water**					
Batch: 7100747								
Arsenic	**6.97**	1.00	2.00	ug/L	1	10/13/17 17:41	EPA 6020A (Diss)	
Barium	**32.9**	0.500	1.00	"	"	"	"	
Chromium	**0.733**	0.500	1.00	"	"	"	"	J
Lead	**0.189**	0.100	0.200	"	"	"	"	J
Mercury	ND	0.0400	0.0800	"	"	"	"	
Selenium	ND	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
B-I-GW (A7J0065-03RE1)			**Matrix: Water**					
Batch: 7100747								
Cadmium	ND	0.0400	0.200	ug/L	1	10/16/17 15:57	EPA 6020A (Diss)	
B-J-GW (A7J0065-05)			**Matrix: Water**					
Batch: 7100747								
Barium	**18.5**	0.500	1.00	ug/L	1	10/13/17 17:47	EPA 6020A (Diss)	
Chromium	**1.03**	0.500	1.00	"	"	"	"	
Lead	**1.26**	0.100	0.200	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Selenium	ND	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
B-J-GW (A7J0065-05RE1)			**Matrix: Water**					
Batch: 7100747								
Arsenic	**1.81**	0.500	1.00	ug/L	1	10/16/17 16:04	EPA 6020A (Diss)	
Cadmium	**0.0667**	0.0400	0.200	"	"	"	"	J

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AMENDED REPORT

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-O (1') (A7J0065-06)			**Matrix: Soil**		**Batch: 7100443**			
% Solids	**93.0**	1.00	1.00	% by Weight	1	10/05/17 08:25	EPA 8000C	
B-O (3') (A7J0065-07)			**Matrix: Soil**		**Batch: 7100443**			
% Solids	**88.6**	1.00	1.00	% by Weight	1	10/05/17 08:25	EPA 8000C	
B-O (4.5') (A7J0065-08)			**Matrix: Soil**		**Batch: 7100443**			
% Solids	**96.4**	1.00	1.00	% by Weight	1	10/05/17 08:25	EPA 8000C	
B-O-E (1') (A7J0065-09)			**Matrix: Soil**		**Batch: 7100443**			
% Solids	**84.1**	1.00	1.00	% by Weight	1	10/05/17 08:25	EPA 8000C	

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100464 - EPA 3510C (Fuels/Acid Ext.) w/Silica Gel + Acid								**Water**				
Blank (7100464-BLK1)					Prepared: 10/05/17 07:14		Analyzed: 10/05/17 18:37					
NWTPH-Dx/SG												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 94 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (7100464-BS1)					Prepared: 10/05/17 07:14		Analyzed: 10/05/17 18:59					
NWTPH-Dx/SG												
Diesel	1.00	0.100	0.200	mg/L	1	1.25	---	80	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS Dup (7100464-BSD1)					Prepared: 10/05/17 07:14		Analyzed: 10/05/17 19:23					Q-19
NWTPH-Dx/SG												
Diesel	1.06	0.100	0.200	mg/L	1	1.25	---	84	58-115%	5	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 109 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100417 - EPA 5030B							**Water**					
Blank (7100417-BLK1)					Prepared: 10/04/17 09:00 Analyzed: 10/04/17 10:28							
EPA 8260C												
Acetone	ND	10.0	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	1.00	2.00	"	"	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	"	"	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	"	"	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Carbon disulfide	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Chloroethane	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chloromethane	ND	2.50	5.00	"	"	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloropropane	ND	0.250	0.500	"	"	---	---	---	---	---	---	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100417 - EPA 5030B							**Water**					
Blank (7100417-BLK1)					Prepared: 10/04/17 09:00 Analyzed: 10/04/17 10:28							
EPA 8260C												
1,3-Dichloropropane	ND	0.500	1.00	ug/L	"	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	"	"	---	---	---	---	---	---	
2-Hexanone	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Methylene chloride	ND	1.50	3.00	"	"	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Naphthalene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Vinyl chloride	ND	0.200	0.400	"	"	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	"	"	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 111 %* *Limits: 80-120 %* *Dilution: 1x*
Toluene-d8 (Surr) *99 %* *80-120 %* *"*

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Darrell Auvil, Project Manager

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100417 - EPA 5030B									**Water**			
Blank (7100417-BLK1)						Prepared: 10/04/17 09:00 Analyzed: 10/04/17 10:28						
EPA 8260C												
Surr: 4-Bromofluorobenzene (Surr)			*Recovery: 96 %*	*Limits: 80-120 %*		*Dilution: 1x*						
LCS (7100417-BS1)						Prepared: 10/04/17 09:00 Analyzed: 10/04/17 09:35						
EPA 8260C												
Acetone	36.5	10.0	20.0	ug/L	1	40.0	---	91	80-120%	---	---	
Acrylonitrile	19.4	1.00	2.00	"	"	20.0	---	97	"	---	---	
Benzene	20.5	0.100	0.200	"	"	"	---	102	"	---	---	
Bromobenzene	19.3	0.250	0.500	"	"	"	---	96	"	---	---	
Bromochloromethane	23.2	0.500	1.00	"	"	"	---	116	"	---	---	
Bromodichloromethane	22.4	0.500	1.00	"	"	"	---	112	"	---	---	
Bromoform	20.1	0.500	1.00	"	"	"	---	101	"	---	---	
Bromomethane	25.4	5.00	5.00	"	"	"	---	127	"	---	---	Q-56
2-Butanone (MEK)	39.0	5.00	10.0	"	"	40.0	---	97	"	---	---	
n-Butylbenzene	19.4	0.500	1.00	"	"	20.0	---	97	"	---	---	
sec-Butylbenzene	18.9	0.500	1.00	"	"	"	---	95	"	---	---	
tert-Butylbenzene	16.8	0.500	1.00	"	"	"	---	84	"	---	---	
Carbon disulfide	20.6	5.00	10.0	"	"	"	---	103	"	---	---	
Carbon tetrachloride	19.3	0.500	1.00	"	"	"	---	97	"	---	---	
Chlorobenzene	20.4	0.250	0.500	"	"	"	---	102	"	---	---	
Chloroethane	21.3	5.00	10.0	"	"	"	---	107	"	---	---	
Chloroform	21.1	0.500	1.00	"	"	"	---	105	"	---	---	
Chloromethane	24.1	2.50	5.00	"	"	"	---	121	"	---	---	Q-56
2-Chlorotoluene	18.3	0.500	1.00	"	"	"	---	91	"	---	---	
4-Chlorotoluene	18.4	0.500	1.00	"	"	"	---	92	"	---	---	
Dibromochloromethane	18.2	0.500	1.00	"	"	"	---	91	"	---	---	
1,2-Dibromo-3-chloropropane	16.2	2.50	5.00	"	"	"	---	81	"	---	---	
1,2-Dibromoethane (EDB)	20.8	0.250	0.500	"	"	"	---	104	"	---	---	
Dibromomethane	21.4	0.500	1.00	"	"	"	---	107	"	---	---	
1,2-Dichlorobenzene	19.4	0.250	0.500	"	"	"	---	97	"	---	---	
1,3-Dichlorobenzene	19.7	0.250	0.500	"	"	"	---	98	"	---	---	
1,4-Dichlorobenzene	19.6	0.250	0.500	"	"	"	---	98	"	---	---	
Dichlorodifluoromethane	23.9	0.500	1.00	"	"	"	---	119	"	---	---	
1,1-Dichloroethane	19.7	0.250	0.500	"	"	"	---	98	"	---	---	
1,2-Dichloroethane (EDC)	20.0	0.250	0.500	"	"	"	---	100	"	---	---	
1,1-Dichloroethene	18.5	0.250	0.500	"	"	"	---	92	"	---	---	

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Darrell Auvil, Project Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100417 - EPA 5030B							**Water**					
LCS (7100417-BS1)					Prepared: 10/04/17 09:00 Analyzed: 10/04/17 09:35							
EPA 8260C												
cis-1,2-Dichloroethene	19.1	0.250	0.500	ug/L	"	"	---	95	"	---	---	
trans-1,2-Dichloroethene	19.7	0.250	0.500	"	"	"	---	98	"	---	---	
1,2-Dichloropropane	19.8	0.250	0.500	"	"	"	---	99	"	---	---	
1,3-Dichloropropane	19.8	0.500	1.00	"	"	"	---	99	"	---	---	
2,2-Dichloropropane	17.1	0.500	1.00	"	"	"	---	86	"	---	---	
1,1-Dichloropropene	19.4	0.500	1.00	"	"	"	---	97	"	---	---	
cis-1,3-Dichloropropene	16.5	0.500	1.00	"	"	"	---	82	"	---	---	
trans-1,3-Dichloropropene	16.5	0.500	1.00	"	"	"	---	82	"	---	---	
Ethylbenzene	19.7	0.250	0.500	"	"	"	---	98	"	---	---	
Hexachlorobutadiene	18.3	2.50	5.00	"	"	"	---	92	"	---	---	
2-Hexanone	35.8	5.00	10.0	"	"	40.0	---	89	"	---	---	
Isopropylbenzene	19.0	0.500	1.00	"	"	20.0	---	95	"	---	---	
4-Isopropyltoluene	18.8	0.500	1.00	"	"	"	---	94	"	---	---	
Methylene chloride	20.0	1.50	3.00	"	"	"	---	100	"	---	---	
4-Methyl-2-pentanone (MiBK)	35.5	5.00	10.0	"	"	40.0	---	89	"	---	---	
Methyl tert-butyl ether (MTBE)	17.2	0.500	1.00	"	"	20.0	---	86	"	---	---	
Naphthalene	16.0	1.00	2.00	"	"	"	---	80	"	---	---	
n-Propylbenzene	18.9	0.250	0.500	"	"	"	---	95	"	---	---	
Styrene	20.0	0.500	1.00	"	"	"	---	100	"	---	---	
1,1,1,2-Tetrachloroethane	18.9	0.250	0.500	"	"	"	---	94	"	---	---	
1,1,2,2-Tetrachloroethane	18.7	0.250	0.500	"	"	"	---	94	"	---	---	
Tetrachloroethene (PCE)	20.7	0.250	0.500	"	"	"	---	104	"	---	---	
Toluene	18.7	0.500	1.00	"	"	"	---	93	"	---	---	
1,2,3-Trichlorobenzene	18.6	1.00	2.00	"	"	"	---	93	"	---	---	
1,2,4-Trichlorobenzene	17.7	1.00	2.00	"	"	"	---	89	"	---	---	
1,1,1-Trichloroethane	19.6	0.250	0.500	"	"	"	---	98	"	---	---	
1,1,2-Trichloroethane	20.7	0.250	0.500	"	"	"	---	103	"	---	---	
Trichloroethene (TCE)	18.1	0.250	0.500	"	"	"	---	91	"	---	---	
Trichlorofluoromethane	23.8	1.00	2.00	"	"	"	---	119	"	---	---	
1,2,3-Trichloropropane	19.7	0.500	1.00	"	"	"	---	98	"	---	---	
1,2,4-Trimethylbenzene	18.8	0.500	1.00	"	"	"	---	94	"	---	---	
1,3,5-Trimethylbenzene	19.0	0.500	1.00	"	"	"	---	95	"	---	---	
Vinyl chloride	21.8	0.200	0.400	"	"	"	---	109	"	---	---	
m,p-Xylene	38.9	0.500	1.00	"	"	40.0	---	97	"	---	---	

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Darrell Auvil, Project Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100417 - EPA 5030B											**Water**	
LCS (7100417-BS1)					Prepared: 10/04/17 09:00 Analyzed: 10/04/17 09:35							
EPA 8260C												
o-Xylene	17.6	0.250	0.500	ug/L	"	20.0	---	88	"	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 104 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*98 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*92 %*		*80-120 %*			*"*				
Duplicate (7100417-DUP1)					Prepared: 10/04/17 09:50 Analyzed: 10/04/17 13:37							
QC Source Sample: Other (A7J0065-04)												
EPA 8260C												
Acetone	ND	10.0	20.0	ug/L	1	---	ND	---	---	---	30%	
Acrylonitrile	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
Benzene	ND	0.100	0.200	"	"	---	ND	---	---	---	30%	
Bromobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Bromochloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromodichloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromoform	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromomethane	ND	5.00	5.00	"	"	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
n-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Carbon disulfide	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Chlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Chloroethane	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Chloroform	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Chloromethane	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Dibromochloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Dibromomethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100417 - EPA 5030B							**Water**					
Duplicate (7100417-DUP1)					Prepared: 10/04/17 09:50 Analyzed: 10/04/17 13:37							
QC Source Sample: Other (A7J0065-04)												
EPA 8260C												
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	"	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
2-Hexanone	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Isopropylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Methylene chloride	ND	1.50	3.00	"	"	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
n-Propylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Styrene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Toluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	

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Darrell Auvil, Project Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100417 - EPA 5030B							**Water**					
Duplicate (7100417-DUP1)					Prepared: 10/04/17 09:50 Analyzed: 10/04/17 13:37							
QC Source Sample: Other (A7J0065-04)												
EPA 8260C												
Trichlorofluoromethane	ND	1.00	2.00	ug/L	"	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Vinyl chloride	ND	0.200	0.400	"	"	---	ND	---	---	---	30%	
m,p-Xylene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
o-Xylene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 114 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*99 %*	*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)			*96 %*	*80-120 %*			*"*					
Matrix Spike (7100417-MS1)					Prepared: 10/04/17 09:50 Analyzed: 10/04/17 14:58							
QC Source Sample: B-J-GW (A7J0065-05)												
EPA 8260C												
Acetone	39.0	10.0	20.0	ug/L	1	40.0	ND	97	39-160%	---	---	
Acrylonitrile	18.5	1.00	2.00	"	"	20.0	ND	92	63-135%	---	---	
Benzene	20.2	0.100	0.200	"	"	"	ND	101	79-120%	---	---	
Bromobenzene	18.6	0.250	0.500	"	"	"	ND	93	80-120%	---	---	
Bromochloromethane	22.5	0.500	1.00	"	"	"	ND	112	78-123%	---	---	
Bromodichloromethane	21.9	0.500	1.00	"	"	"	ND	109	79-125%	---	---	
Bromoform	19.0	0.500	1.00	"	"	"	ND	95	66-130%	---	---	
Bromomethane	25.4	5.00	5.00	"	"	"	ND	127	53-141%	---	---	Q-54a
2-Butanone (MEK)	37.2	5.00	10.0	"	"	40.0	ND	93	56-143%	---	---	
n-Butylbenzene	18.3	0.500	1.00	"	"	20.0	ND	91	75-128%	---	---	
sec-Butylbenzene	18.2	0.500	1.00	"	"	"	ND	91	77-126%	---	---	
tert-Butylbenzene	16.2	0.500	1.00	"	"	"	ND	81	78-124%	---	---	
Carbon disulfide	15.2	5.00	10.0	"	"	"	ND	76	64-133%	---	---	
Carbon tetrachloride	19.6	0.500	1.00	"	"	"	ND	98	72-136%	---	---	
Chlorobenzene	19.7	0.250	0.500	"	"	"	ND	98	80-120%	---	---	
Chloroethane	21.6	5.00	10.0	"	"	"	ND	108	60-138%	---	---	
Chloroform	20.8	0.500	1.00	"	"	"	ND	104	79-124%	---	---	
Chloromethane	23.7	2.50	5.00	"	"	"	ND	119	50-139%	---	---	Q-54
2-Chlorotoluene	18.0	0.500	1.00	"	"	"	ND	90	79-122%	---	---	

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Darrell Auvil, Project Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100417 - EPA 5030B							**Water**					
Matrix Spike (7100417-MS1)					Prepared: 10/04/17 09:50 Analyzed: 10/04/17 14:58							
QC Source Sample: B-J-GW (A7J0065-05)												
EPA 8260C												
4-Chlorotoluene	17.6	0.500	1.00	ug/L	"	"	ND	88	78-122%	---	---	
Dibromochloromethane	17.2	0.500	1.00	"	"	"	ND	86	74-126%	---	---	
1,2-Dibromo-3-chloropropane	16.0	2.50	5.00	"	"	"	ND	80	62-128%	---	---	
1,2-Dibromoethane (EDB)	19.4	0.250	0.500	"	"	"	ND	97	77-121%	---	---	
Dibromomethane	20.6	0.500	1.00	"	"	"	ND	103	79-123%	---	---	
1,2-Dichlorobenzene	18.8	0.250	0.500	"	"	"	ND	94	80-120%	---	---	
1,3-Dichlorobenzene	19.0	0.250	0.500	"	"	"	ND	95	"	---	---	
1,4-Dichlorobenzene	18.8	0.250	0.500	"	"	"	ND	94	79-120%	---	---	
Dichlorodifluoromethane	23.6	0.500	1.00	"	"	"	ND	118	32-152%	---	---	
1,1-Dichloroethane	19.8	0.250	0.500	"	"	"	ND	99	77-125%	---	---	
1,2-Dichloroethane (EDC)	19.7	0.250	0.500	"	"	"	ND	98	73-128%	---	---	
1,1-Dichloroethene	15.1	0.250	0.500	"	"	"	ND	75	71-131%	---	---	
cis-1,2-Dichloroethene	18.2	0.250	0.500	"	"	"	ND	91	78-123%	---	---	
trans-1,2-Dichloroethene	19.3	0.250	0.500	"	"	"	ND	96	75-124%	---	---	
1,2-Dichloropropane	19.2	0.250	0.500	"	"	"	ND	96	78-122%	---	---	
1,3-Dichloropropane	18.2	0.500	1.00	"	"	"	ND	91	80-120%	---	---	
2,2-Dichloropropane	14.0	0.500	1.00	"	"	"	ND	70	60-139%	---	---	
1,1-Dichloropropene	19.2	0.500	1.00	"	"	"	ND	96	79-125%	---	---	
cis-1,3-Dichloropropene	13.4	0.500	1.00	"	"	"	ND	67	75-124%	---	---	Q-01
trans-1,3-Dichloropropene	14.7	0.500	1.00	"	"	"	ND	74	73-127%	---	---	
Ethylbenzene	19.0	0.250	0.500	"	"	"	ND	95	79-121%	---	---	
Hexachlorobutadiene	17.6	2.50	5.00	"	"	"	ND	88	66-134%	---	---	
2-Hexanone	33.0	5.00	10.0	"	"	40.0	ND	83	57-139%	---	---	
Isopropylbenzene	17.9	0.500	1.00	"	"	20.0	ND	89	72-131%	---	---	
4-Isopropyltoluene	17.9	0.500	1.00	"	"	"	ND	89	77-127%	---	---	
Methylene chloride	19.8	1.50	3.00	"	"	"	ND	99	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	32.4	5.00	10.0	"	"	40.0	ND	81	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	15.9	0.500	1.00	"	"	20.0	ND	80	71-124%	---	---	
Naphthalene	15.3	1.00	2.00	"	"	"	ND	76	61-128%	---	---	
n-Propylbenzene	18.4	0.250	0.500	"	"	"	ND	92	76-126%	---	---	
Styrene	17.2	0.500	1.00	"	"	"	ND	86	78-123%	---	---	
1,1,1,2-Tetrachloroethane	18.3	0.250	0.500	"	"	"	ND	91	78-124%	---	---	
1,1,2,2-Tetrachloroethane	19.6	0.250	0.500	"	"	"	ND	98	71-121%	---	---	

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Darrell Auvil, Project Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100417 - EPA 5030B							**Water**					
Matrix Spike (7100417-MS1)					Prepared: 10/04/17 09:50 Analyzed: 10/04/17 14:58							
QC Source Sample: B-J-GW (A7J0065-05)												
EPA 8260C												
Tetrachloroethene (PCE)	19.9	0.250	0.500	ug/L	"	"	ND	100	74-129%	---	---	
Toluene	17.8	0.500	1.00	"	"	"	ND	89	80-121%	---	---	
1,2,3-Trichlorobenzene	18.5	1.00	2.00	"	"	"	ND	93	69-129%	---	---	
1,2,4-Trichlorobenzene	16.7	1.00	2.00	"	"	"	ND	84	69-130%	---	---	
1,1,1-Trichloroethane	19.7	0.250	0.500	"	"	"	ND	99	74-131%	---	---	
1,1,2-Trichloroethane	19.3	0.250	0.500	"	"	"	ND	96	80-120%	---	---	
Trichloroethene (TCE)	16.9	0.250	0.500	"	"	"	ND	85	79-123%	---	---	
Trichlorofluoromethane	24.3	1.00	2.00	"	"	"	ND	121	65-141%	---	---	
1,2,3-Trichloropropane	18.6	0.500	1.00	"	"	"	ND	93	73-122%	---	---	
1,2,4-Trimethylbenzene	17.1	0.500	1.00	"	"	"	ND	85	76-124%	---	---	
1,3,5-Trimethylbenzene	18.1	0.500	1.00	"	"	"	ND	91	75-124%	---	---	
Vinyl chloride	21.8	0.200	0.400	"	"	"	ND	109	58-137%	---	---	
m,p-Xylene	36.9	0.500	1.00	"	"	40.0	ND	92	80-121%	---	---	
o-Xylene	16.5	0.250	0.500	"	"	20.0	ND	82	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 106 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*95 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*92 %*		*80-120 %*			*"*				

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AMENDED REPORT

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100445 - EPA 3510C (Neutral pH)							**Water**					
Blank (7100445-BLK1)					Prepared: 10/04/17 13:13		Analyzed: 10/05/17 09:29					C-07
EPA 8082A												
Aroclor 1016	ND	0.0455	0.0909	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 58-120 %*			*Dilution: 1x*					
LCS (7100445-BS1)					Prepared: 10/04/17 13:13		Analyzed: 10/05/17 09:46					C-07
EPA 8082A												
Aroclor 1016	1.73	0.0500	0.100	ug/L	1	2.50	---	69	46-129%	---	---	
Aroclor 1260	1.88	0.0500	0.100	"	"	"	---	75	45-134%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 58-120 %*			*Dilution: 1x*					
LCS Dup (7100445-BSD1)					Prepared: 10/04/17 13:13		Analyzed: 10/05/17 10:04					C-07, Q-19
EPA 8082A												
Aroclor 1016	1.75	0.0500	0.100	ug/L	1	2.50	---	70	46-129%	1	30%	
Aroclor 1260	1.93	0.0500	0.100	"	"	"	---	77	45-134%	3	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 58-120 %*			*Dilution: 1x*					

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AMENDED REPORT

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100412 - EPA 3510C (Acid Extraction)							**Water**					
Blank (7100412-BLK1)					Prepared: 10/04/17 06:27 Analyzed: 10/05/17 19:52							
EPA 8270D (SIM)												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Naphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Phenanthrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*		*Limits: 44-120 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*105 %*		*50-133 %*				*"*			
LCS (7100412-BS1)					Prepared: 10/04/17 06:27 Analyzed: 10/05/17 20:18							
EPA 8270D (SIM)												
Acenaphthene	3.51	0.0100	0.0200	ug/L	1	4.00	---	88	47-122%	---	---	
Acenaphthylene	3.26	0.0100	0.0200	"	"	"	---	81	41-130%	---	---	
Anthracene	3.49	0.0100	0.0200	"	"	"	---	87	57-123%	---	---	
Benz(a)anthracene	3.56	0.0100	0.0200	"	"	"	---	89	58-125%	---	---	
Benzo(a)pyrene	3.78	0.0100	0.0200	"	"	"	---	95	54-128%	---	---	
Benzo(b)fluoranthene	3.55	0.0100	0.0200	"	"	"	---	89	53-131%	---	---	
Benzo(k)fluoranthene	3.67	0.0100	0.0200	"	"	"	---	92	57-129%	---	---	
Benzo(g,h,i)perylene	3.12	0.0100	0.0200	"	"	"	---	78	50-134%	---	---	
Chrysene	3.84	0.0100	0.0200	"	"	"	---	96	59-123%	---	---	
Dibenz(a,h)anthracene	3.70	0.0100	0.0200	"	"	"	---	92	51-134%	---	---	
Dibenzofuran	3.26	0.0100	0.0200	"	"	"	---	82	53-120%	---	---	

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100412 - EPA 3510C (Acid Extraction)							**Water**					
LCS (7100412-BS1)					Prepared: 10/04/17 06:27 Analyzed: 10/05/17 20:18							
EPA 8270D (SIM)												
Fluoranthene	3.12	0.0100	0.0200	ug/L	"	"	---	78	57-128%	---	---	
Fluorene	3.26	0.0100	0.0200	"	"	"	---	82	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.37	0.0100	0.0200	"	"	"	---	84	52-133%	---	---	
1-Methylnaphthalene	3.26	0.0200	0.0400	"	"	"	---	82	41-120%	---	---	
2-Methylnaphthalene	3.15	0.0200	0.0400	"	"	"	---	79	40-121%	---	---	
Naphthalene	3.20	0.0200	0.0400	"	"	"	---	80	"	---	---	
Phenanthrene	3.32	0.0100	0.0200	"	"	"	---	83	59-120%	---	---	
Pyrene	3.05	0.0100	0.0200	"	"	"	---	76	57-126%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*		*Limits: 44-120 %*		*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*105 %*		*50-133 %*		"					
LCS Dup (7100412-BSD1)					Prepared: 10/04/17 06:27 Analyzed: 10/05/17 20:44							Q-19
EPA 8270D (SIM)												
Acenaphthene	3.53	0.0100	0.0200	ug/L	1	4.00	---	88	47-122%	0.8	30%	
Acenaphthylene	3.23	0.0100	0.0200	"	"	"	---	81	41-130%	0.6	30%	
Anthracene	3.38	0.0100	0.0200	"	"	"	---	85	57-123%	3	30%	
Benz(a)anthracene	3.59	0.0100	0.0200	"	"	"	---	90	58-125%	0.9	30%	
Benzo(a)pyrene	3.74	0.0100	0.0200	"	"	"	---	94	54-128%	1	30%	
Benzo(b)fluoranthene	3.54	0.0100	0.0200	"	"	"	---	89	53-131%	0.2	30%	
Benzo(k)fluoranthene	3.68	0.0100	0.0200	"	"	"	---	92	57-129%	0.3	30%	
Benzo(g,h,i)perylene	3.08	0.0100	0.0200	"	"	"	---	77	50-134%	1	30%	
Chrysene	3.86	0.0100	0.0200	"	"	"	---	96	59-123%	0.5	30%	
Dibenz(a,h)anthracene	3.67	0.0100	0.0200	"	"	"	---	92	51-134%	0.7	30%	
Dibenzofuran	3.17	0.0100	0.0200	"	"	"	---	79	53-120%	3	30%	
Fluoranthene	3.30	0.0100	0.0200	"	"	"	---	83	57-128%	6	30%	
Fluorene	3.21	0.0100	0.0200	"	"	"	---	80	52-124%	2	30%	
Indeno(1,2,3-cd)pyrene	3.37	0.0100	0.0200	"	"	"	---	84	52-133%	0.04	30%	
1-Methylnaphthalene	3.30	0.0200	0.0400	"	"	"	---	82	41-120%	1	30%	
2-Methylnaphthalene	3.16	0.0200	0.0400	"	"	"	---	79	40-121%	0.1	30%	
Naphthalene	3.23	0.0200	0.0400	"	"	"	---	81	"	0.8	30%	
Phenanthrene	3.24	0.0100	0.0200	"	"	"	---	81	59-120%	2	30%	
Pyrene	3.21	0.0100	0.0200	"	"	"	---	80	57-126%	5	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*		*Limits: 44-120 %*		*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*101 %*		*50-133 %*		"					

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AMENDED REPORT

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100686 - EPA 3015A							**Water**					
Blank (7100686-BLK1)					Prepared: 10/12/17 10:13		Analyzed: 10/13/17 14:07					
EPA 6020A												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Barium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	
Selenium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Blank (7100686-BLK2)					Prepared: 10/12/17 10:13		Analyzed: 10/16/17 13:24					
EPA 6020A												
Cadmium	ND	0.0400	0.200	ug/L	1	---	---	---	---	---	---	Q-16
LCS (7100686-BS1)					Prepared: 10/12/17 10:13		Analyzed: 10/13/17 14:10					
EPA 6020A												
Arsenic	53.9	0.500	1.00	ug/L	1	55.6	---	97	80-120%	---	---	
Barium	55.2	0.500	1.00	"	"	"	---	99	"	---	---	
Cadmium	53.4	0.500	1.00	"	"	"	---	96	"	---	---	
Chromium	55.6	0.500	1.00	"	"	"	---	100	"	---	---	
Lead	53.2	0.100	0.200	"	"	"	---	96	"	---	---	
Mercury	1.08	0.0400	0.0800	"	"	1.11	---	97	"	---	---	
Selenium	26.6	0.500	1.00	"	"	27.8	---	96	"	---	---	
Silver	27.2	0.100	0.200	"	"	"	---	98	"	---	---	

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AMENDED REPORT

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100747 - Matrix Matched Direct Inject								**Water**				
Blank (7100747-BLK1)					Prepared: 10/13/17 12:00		Analyzed: 10/13/17 17:22					
EPA 6020A (Diss)												
Barium	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	
Selenium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Blank (7100747-BLK3)					Prepared: 10/13/17 12:00		Analyzed: 10/16/17 19:25					
EPA 6020A (Diss)												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	Q-16
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	Q-16
LCS (7100747-BS1)					Prepared: 10/13/17 12:00		Analyzed: 10/13/17 17:25					
EPA 6020A (Diss)												
Arsenic	53.0	1.00	2.00	ug/L	1	55.6	---	95	80-120%	---	---	
Barium	55.2	0.500	1.00	"	"	"	---	99	"	---	---	
Cadmium	51.7	0.500	1.00	"	"	"	---	93	"	---	---	
Chromium	56.9	0.500	1.00	"	"	"	---	102	"	---	---	
Lead	51.4	0.100	0.200	"	"	"	---	93	"	---	---	
Mercury	1.06	0.0400	0.0800	"	"	1.11	---	95	"	---	---	
Selenium	27.3	0.500	1.00	"	"	27.8	---	98	"	---	---	
Silver	26.6	0.100	0.200	"	"	"	---	96	"	---	---	
Duplicate (7100747-DUP1)					Prepared: 10/13/17 12:00		Analyzed: 10/13/17 17:44					
QC Source Sample: B-I-GW (A7J0065-03)												
EPA 6020A (Diss)												
Arsenic	**7.04**	1.00	2.00	ug/L	1	---	6.97	---	---	1	20%	
Barium	**33.7**	0.500	1.00	"	"	---	32.9	---	---	3	20%	
Chromium	**0.844**	0.500	1.00	"	"	---	0.733	---	---	14	20%	J
Lead	**0.200**	0.100	0.200	"	"	---	0.189	---	---	6	20%	
Mercury	ND	0.0400	0.0800	"	"	---	ND	---	---	---	20%	
Selenium	ND	0.500	1.00	"	"	---	ND	---	---	---	20%	
Silver	ND	0.100	0.200	"	"	---	ND	---	---	---	20%	
Duplicate (7100747-DUP2)					Prepared: 10/13/17 12:00		Analyzed: 10/16/17 16:00					

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Darrell Auvil, Project Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100747 - Matrix Matched Direct Inject							**Water**					
Duplicate (7100747-DUP2)					Prepared: 10/13/17 12:00		Analyzed: 10/16/17 16:00					
QC Source Sample: B-I-GW (A7J0065-03RE1)												
EPA 6020A (Diss)												
Cadmium	ND	0.0400	0.200	ug/L	1	---	ND	---	---	---	20%	Q-16
Matrix Spike (7100747-MS1)					Prepared: 10/13/17 12:00		Analyzed: 10/13/17 17:50					
QC Source Sample: B-J-GW (A7J0065-05)												
EPA 6020A (Diss)												
Barium	73.1	0.500	1.00	ug/L	1	55.6	18.5	98	75-125%	---	---	
Chromium	56.3	0.500	1.00	"	"	"	1.03	100	"	---	---	
Lead	53.0	0.100	0.200	"	"	"	1.26	93	"	---	---	
Mercury	1.03	0.0400	0.0800	"	"	1.11	ND	93	"	---	---	
Selenium	25.8	0.500	1.00	"	"	27.8	ND	93	"	---	---	
Silver	27.1	0.100	0.200	"	"	"	ND	97	"	---	---	
Matrix Spike (7100747-MS2)					Prepared: 10/13/17 12:00		Analyzed: 10/16/17 16:07					
QC Source Sample: B-J-GW (A7J0065-05)												
EPA 6020A (Diss)												
Arsenic	56.2	0.500	1.00	ug/L	1	55.6	1.84	98	75-125%	---	---	Q-16
Cadmium	55.1	0.0400	0.200	"	"	"	ND	99	"	---	---	Q-16

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7100443 - Total Solids (Dry Weight)							**Soil**					
Duplicate (7100443-DUP5)					Prepared: 10/04/17 12:19 Analyzed: 10/05/17 08:25							
QC Source Sample: B-O-E (1') (A7J0065-09)												
EPA 8000C												
% Solids	**83.8**	1.00	1.00	% by Weight	1	---	84.1	---	---	0.2	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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AMENDED REPORT

12232 S.W. Garden Place
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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Prep: EPA 3510C (Fuels/Acid Ext.) w/Silica Gel + Acid

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7100464							
A7J0065-01	Water	NWTPH-Dx/SG	09/27/17 13:45	10/05/17 07:14	1060mL/5mL	1000mL/5mL	0.94
A7J0065-02	Water	NWTPH-Dx/SG	09/27/17 15:30	10/05/17 07:14	1050mL/5mL	1000mL/5mL	0.95
A7J0065-03	Water	NWTPH-Dx/SG	09/28/17 12:05	10/05/17 07:14	1060mL/5mL	1000mL/5mL	0.94
A7J0065-05	Water	NWTPH-Dx/SG	09/28/17 10:25	10/05/17 07:14	1070mL/5mL	1000mL/5mL	0.94

Volatile Organic Compounds by EPA 8260C

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7100417							
A7J0065-01RE1	Water	EPA 8260C	09/27/17 13:45	10/04/17 09:50	5mL/5mL	5mL/5mL	1.00
A7J0065-02RE1	Water	EPA 8260C	09/27/17 15:30	10/04/17 09:50	5mL/5mL	5mL/5mL	1.00
A7J0065-03RE1	Water	EPA 8260C	09/28/17 12:05	10/04/17 09:50	5mL/5mL	5mL/5mL	1.00
A7J0065-04	Water	EPA 8260C	09/28/17 12:05	10/04/17 09:50	5mL/5mL	5mL/5mL	1.00
A7J0065-05	Water	EPA 8260C	09/28/17 10:25	10/04/17 09:50	5mL/5mL	5mL/5mL	1.00
A7J0065-10	Water	EPA 8260C	10/03/17 00:00	10/04/17 09:50	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7100445							
A7J0065-03	Water	EPA 8082A	09/28/17 12:05	10/04/17 13:25	1060mL/5mL	1000mL/5mL	0.94
A7J0065-05RE1	Water	EPA 8082A	09/28/17 10:25	10/04/17 13:25	1060mL/5mL	1000mL/5mL	0.94

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7100412							
A7J0065-03	Water	EPA 8270D (SIM)	09/28/17 12:05	10/04/17 06:27	1060mL/2mL	1000mL/2mL	0.94
A7J0065-05	Water	EPA 8270D (SIM)	09/28/17 10:25	10/04/17 06:27	1050mL/2mL	1000mL/2mL	0.95

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Sample	Default	RL Prep

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Darrell Auvil, Project Manager

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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
Batch: 7100686							
A7J0065-03	Water	EPA 6020A	09/28/17 12:05	10/12/17 10:13	45mL/50mL	45mL/50mL	1.00
A7J0065-03RE1	Water	EPA 6020A	09/28/17 12:05	10/12/17 10:13	45mL/50mL	45mL/50mL	1.00
A7J0065-05	Water	EPA 6020A	09/28/17 10:25	10/12/17 10:13	45mL/50mL	45mL/50mL	1.00
A7J0065-05RE1	Water	EPA 6020A	09/28/17 10:25	10/12/17 10:13	45mL/50mL	45mL/50mL	1.00

Dissolved Metals by EPA 6020 (ICPMS)

Prep: Matrix Matched Direct Inject

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7100747							
A7J0065-03	Water	EPA 6020A (Diss)	09/28/17 12:05	10/13/17 12:00	45mL/50mL	45mL/50mL	1.00
A7J0065-03RE1	Water	EPA 6020A (Diss)	09/28/17 12:05	10/13/17 12:00	45mL/50mL	45mL/50mL	1.00
A7J0065-05	Water	EPA 6020A (Diss)	09/28/17 10:25	10/13/17 12:00	45mL/50mL	45mL/50mL	1.00
A7J0065-05RE1	Water	EPA 6020A (Diss)	09/28/17 10:25	10/13/17 12:00	45mL/50mL	45mL/50mL	1.00

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7100443							
A7J0065-06	Soil	EPA 8000C	09/29/17 13:44	10/04/17 12:19	1N/A/1N/A	1N/A/1N/A	NA
A7J0065-07	Soil	EPA 8000C	09/29/17 13:42	10/04/17 12:19	1N/A/1N/A	1N/A/1N/A	NA
A7J0065-08	Soil	EPA 8000C	09/29/17 13:40	10/04/17 12:19	1N/A/1N/A	1N/A/1N/A	NA
A7J0065-09	Soil	EPA 8000C	09/29/17 13:15	10/04/17 12:19	1N/A/1N/A	1N/A/1N/A	NA

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Darrell Auvil, Project Manager

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AMENDED REPORT

12232 S.W. Garden Place
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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

Notes and Definitions

Qualifiers:

C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
Q-01	Spike recovery and/or RPD is outside acceptance limits.
Q-16	Reanalysis of an original Batch QC sample.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
Q-54	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +1%. The results are reported as Estimated Values.
Q-54a	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +7%. The results are reported as Estimated Values.
Q-56	Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260C

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

Apex Laboratories

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Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
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AMENDED REPORT

Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

--- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

*** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Darrell Auvil, Project Manager

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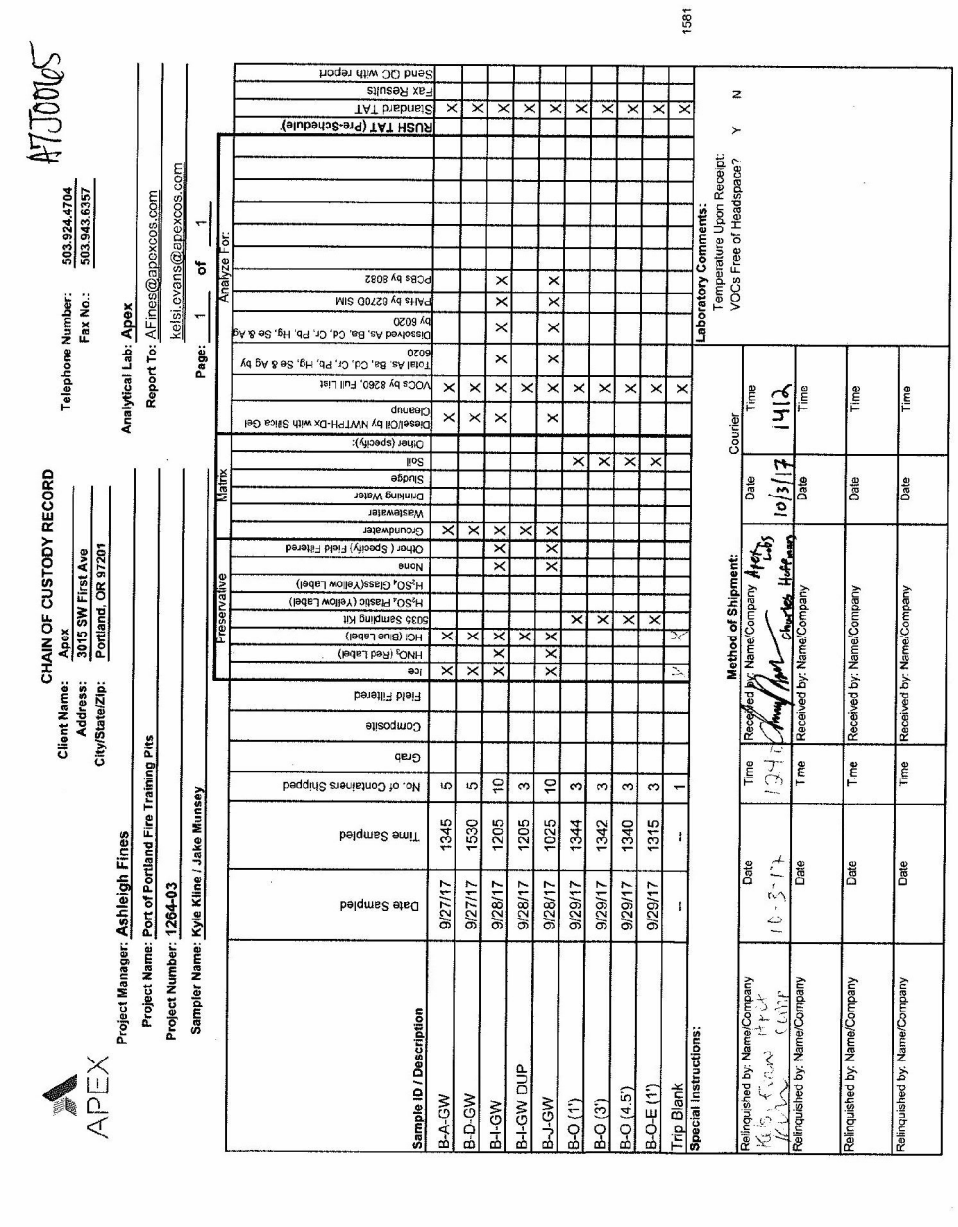
Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28



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Apex Companies, LLC	Project: **POP - Fire Training Pits**	
3015 SW First Avenue	Project Number: 1264-03	**Reported:**
Portland, OR 97201	Project Manager: Ashleigh Fines	11/08/17 11:28

APEX LABS COOLER RECEIPT FORM

Client: ApexCo Element WO#: A710065

Project/Project #: Port of Portland Fire Training PTFS 1264-03

Delivery info:

Date/Time Received: 10/3/17 @ 1412 By: CFH

Delivered by: Apex X Client ESS FedEx UPS Swift Senvoy SDS Other

Cooler Inspection Inspected by: CFH : 10/3/17 @ 1514

Chain of Custody Included? Yes X No Custody Seals? Yes No —

Signed/Dated by Client? Yes X No

Signed/Dated by Apex? Yes X No

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)		5.5					
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	4.0		4.2				
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CH : 10/04/17 @ 1020

All Samples Intact? Yes ✓ No Comments:

Bottle Labels/COCs agree? Yes ✓ No Comments: 2/2 1L amb B-D-GW no T on containers

Containers/Volumes Received Appropriate for Analysis? Yes ✓ No Comments:

Do VOA Vials have Visible Headspace? Yes No ✓ NA

Comments 3/3 voas B-D-GW + 3/3 voas B-J-GW have sediment

Water Samples: pH Checked and Appropriate (except VOAs): Yes ✓ No NA

Comments:

Additional Information: TB # 1581

Labeled by: CH Witness: Cooler Inspected by: CH See Project Contact Form: Y

Apex Laboratories

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Darrell Auvil, Project Manager

September 26, 2017

Vista Work Order No. 1701173

Ms. Ashleigh Fines
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

Dear Ms. Fines,

Enclosed are the amended results for the sample set received at Vista Analytical Laboratory on August 31, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name 'PDX Fire Training Facility'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1701173
Case Narrative

Sample Condition on Receipt:

Fourteen aqueous samples and six soil samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The soil samples, currently on hold, were assigned to Vista Work Order No. 1701175. This report was amended to revise the narrative and include the results from additional extract dilutions.

Analytical Notes:

Modified EPA Method 537

The aqueous samples were extracted and analyzed for a selected list of 14 PFAS using Modified EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times. The samples were re-extracted due to detections of PFOS, PFHxS and PFHxA in the Method Blank. The re-extractions were performed outside of the hold time. The results for all other analytes were reported from the original extractions.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each preparation batch. The detected concentrations of PFOS, PFHxA and PFHxS were above the Reporting Limits in Method Blank B7H0199. No other analytes were detected in the Method Blanks above the Reporting Limits. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1701173-01	B-T-GW	Modified EPA Method 537	13C3-PFBS	H	152
1701173-01	B-T-GW	Modified EPA Method 537	13C2-PFTeDA	H	15.4
1701173-03	B-U-GW	Modified EPA Method 537	13C3-PFBS	H	173
1701173-04	B-N-GW	Modified EPA Method 537	13C3-PFBS	H	157
1701173-05	B-G-GW	Modified EPA Method 537	13C3-PFBS	H	241
1701173-06	B-F-GW	Modified EPA Method 537	13C3-PFBS	H	228
1701173-06	B-F-GW	Modified EPA Method 537	13C2-PFOA	H	141
1701173-06	B-F-GW	Modified EPA Method 537	13C5-PFNA	H	47.0
1701173-07	B-S-GW	Modified EPA Method 537	13C3-PFBS	H	159
1701173-08	B-R-GW	Modified EPA Method 537	13C2-PFHxA	H	66.2
1701173-08	B-R-GW	Modified EPA Method 537	13C4-PFHpA	H	44.5
1701173-08	B-R-GW	Modified EPA Method 537	13C5-PFNA	H	43.6
1701173-08	B-R-GW	Modified EPA Method 537	13C2-PFDA	H	46.5
1701173-08	B-R-GW	Modified EPA Method 537	13C2-PFUnA	H	55.6
1701173-09	B-Q-GW	Modified EPA Method 537	13C3-PFBS	H	161
1701173-10	B-P-GW	Modified EPA Method 537	13C3-PFBS	H	158
1701173-10	B-P-GW	Modified EPA Method 537	13C2-PFHxA	H	42.7
1701173-10	B-P-GW	Modified EPA Method 537	18O2-PFHxS	H	44.9
1701173-10	B-P-GW	Modified EPA Method 537	13C8-PFOS	H	53.8
1701173-11	MH-1	Modified EPA Method 537	13C3-PFBS	H	159
1701173-12	MH-2	Modified EPA Method 537	13C3-PFBS	H	164
1701173-14	Ditch_1	Modified EPA Method 537	13C3-PFBS	H	167
B7H0199-BLK1	B7H0199-BLK1	Modified EPA Method 537	13C3-PFBS	H	152

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701173-01	B-T-GW	29-Aug-17 09:22	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-02	B-O-GW	29-Aug-17 10:55	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-03	B-U-GW	29-Aug-17 12:15	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-04	B-N-GW	29-Aug-17 13:25	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-05	B-G-GW	29-Aug-17 14:38	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-06	B-F-GW	29-Aug-17 15:38	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-07	B-S-GW	28-Aug-17 17:20	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-08	B-R-GW	28-Aug-17 15:45	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-09	B-Q-GW	28-Aug-17 12:30	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-10	B-P-GW	28-Aug-17 14:37	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-11	MH-1	29-Aug-17 09:53	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-12	MH-2	29-Aug-17 08:30	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-13	OF1N-NW	29-Aug-17 10:30	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701173-14	Ditch_1	29-Aug-17 10:10	31-Aug-17 09:06	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

Vista Project: 1701173

Client Project: PDX Fire Training Facility

ANALYTICAL RESULTS

Sample ID: Method Blank

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Aqueous

Laboratory Data

Lab Sample: B7H0199-BLK1
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
PFHpA	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
PFOA	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
PFNA	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
PFDA	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
MeFOSAA	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
PFUnA	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
EtFOSAA	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
PFDoA	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
PFTrDA	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
PFTeDA	ND	2.00		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	152	60 - 150	H	B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
13C4-PFHpA	IS	87.9	60 - 150		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
13C2-PFOA	IS	105	60 - 130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
13C5-PFNA	IS	90.4	50 - 130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
13C2-PFDA	IS	70.8	60 - 130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
d3-MeFOSAA	IS	55.7	50 - 150		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
13C2-PFUnA	IS	75.9	60 - 130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
d5-EtFOSAA	IS	54.5	50 - 150		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
13C2-PFDoA	IS	74.9	30 - 130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1
13C2-PFTeDA	IS	42.8	20 - 150		B7H0199	05-Sep-17	0.125 L	15-Sep-17 23:19	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Aqueous

Laboratory Data

Lab Sample: B7H0199-BS1
Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	72.8	80.0	91.0	70-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
PFHpA	73.5	80.0	91.9	70-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
PFOA	64.5	80.0	80.7	70-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
PFNA	65.1	80.0	81.4	70-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
PFDA	72.2	80.0	90.2	70-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
MeFOSAA	75.7	80.0	94.7	70-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
PFUnA	63.3	80.0	79.1	70-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
EtFOSAA	73.7	80.0	92.2	70-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
PFDoA	68.5	80.0	85.6	70-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
PFTrDA	56.2	80.0	70.3	60-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
PFTeDA	78.9	80.0	98.6	70-130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	145	60- 150		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
13C4-PFHpA	IS	90.2	60- 150		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
13C2-PFOA	IS	100	60- 130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
13C5-PFNA	IS	88.3	50- 130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
13C2-PFDA	IS	76.6	60- 130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
d3-MeFOSAA	IS	54.3	50- 150		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
13C2-PFUnA	IS	77.7	60- 130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
d5-EtFOSAA	IS	63.8	50- 150		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
13C2-PFDoA	IS	76.6	30- 130		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1
13C2-PFTeDA	IS	31.1	20- 150		B7H0199	05-Sep-17	0.125 L	15-Sep-17 22:36	1

Sample ID: Method Blank

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Aqueous

Laboratory Data

Lab Sample: B7I0079-BLK1
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFHxA	ND	1.00		B7I0079	16-Sep-17	0.125 L	21-Sep-17 18:12	1
PFHxS	ND	1.00		B7I0079	16-Sep-17	0.125 L	21-Sep-17 18:12	1
PFOS	1.73	1.00		B7I0079	16-Sep-17	0.125 L	21-Sep-17 18:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	95.3	70 - 130		B7I0079	16-Sep-17	0.125 L	21-Sep-17 18:12	1
18O2-PFHxS	IS	100	60 - 130		B7I0079	16-Sep-17	0.125 L	21-Sep-17 18:12	1
13C8-PFOS	IS	93.9	60 - 130		B7I0079	16-Sep-17	0.125 L	21-Sep-17 18:12	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Aqueous

Laboratory Data

Lab Sample: B7I0079-BS1
Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFHxA	77.9	80.0	97.3	70-130		B7I0079	16-Sep-17	0.125 L	21-Sep-17 17:22	1
PFHxS	75.2	80.0	94.0	70-130		B7I0079	16-Sep-17	0.125 L	21-Sep-17 17:22	1
PFOS	76.7	80.0	95.9	70-130	B	B7I0079	16-Sep-17	0.125 L	21-Sep-17 17:22	1
Labeled Standards	**Type**		**% Rec**	**Limits**	**Qualifiers**	**Batch**	**Extracted**	**Samp Size**	**Analyzed**	**Dilution**
13C2-PFHxA	IS		99.7	70- 130		B7I0079	16-Sep-17	0.125 L	21-Sep-17 17:22	1
18O2-PFHxS	IS		98.2	60- 130		B7I0079	16-Sep-17	0.125 L	21-Sep-17 17:22	1
13C8-PFOS	IS		101	60- 130		B7I0079	16-Sep-17	0.125 L	21-Sep-17 17:22	1

Sample ID: B-T-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Groundwater
Date Collected: 29-Aug-17 09:22

Laboratory Data

Lab Sample: 1701173-01
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
PFHxA	2.75	2.20		B7I0079	16-Sep-17	0.114 L	21-Sep-17 19:15	1
PFHpA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
PFHxS	2.52	2.20		B7I0079	16-Sep-17	0.114 L	21-Sep-17 19:15	1
PFOA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
PFOS	2.69	1.10	B	B7I0079	16-Sep-17	0.114 L	21-Sep-17 19:15	1
PFNA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
PFDA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
MeFOSAA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
PFUnA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
EtFOSAA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
PFDoA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
PFTrDA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
PFTeDA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	152	60 - 150	H	B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
13C2-PFHxA	IS	94.9	70 - 130		B7I0079	16-Sep-17	0.114 L	21-Sep-17 19:15	1
13C4-PFHpA	IS	99.6	60 - 150		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
18O2-PFHxS	IS	101	60 - 130		B7I0079	16-Sep-17	0.114 L	21-Sep-17 19:15	1
13C2-PFOA	IS	93.9	60 - 130		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
13C8-PFOS	IS	98.3	60 - 130		B7I0079	16-Sep-17	0.114 L	21-Sep-17 19:15	1
13C5-PFNA	IS	87.3	50 - 130		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
13C2-PFDA	IS	92.9	60 - 130		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
d3-MeFOSAA	IS	71.3	50 - 150		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
13C2-PFUnA	IS	74.0	60 - 130		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
d5-EtFOSAA	IS	65.3	50 - 150		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
13C2-PFDoA	IS	84.3	30 - 130		B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1
13C2-PFTeDA	IS	15.4	20 - 150	H	B7H0199	05-Sep-17	0.114 L	16-Sep-17 02:43	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-O-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Groundwater
Date Collected: 29-Aug-17 10:55

Laboratory Data

Lab Sample: 1701173-02
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	5.92	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
PFHxA	19.5	2.22		B7I0079	16-Sep-17	0.113 L	21-Sep-17 19:27	1
PFHpA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
PFHxS	67.0	2.22		B7I0079	16-Sep-17	0.113 L	21-Sep-17 19:27	1
PFOA	396	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
PFOS	20.8	1.11	B	B7I0079	16-Sep-17	0.113 L	21-Sep-17 19:27	1
PFNA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
PFDA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
MeFOSAA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
PFUnA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
EtFOSAA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
PFDoA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
PFTrDA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
PFTeDA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	149	60 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
13C2-PFHxA	IS	94.8	70 - 130		B7I0079	16-Sep-17	0.113 L	21-Sep-17 19:27	1
13C4-PFHpA	IS	99.3	60 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
18O2-PFHxS	IS	97.3	60 - 130		B7I0079	16-Sep-17	0.113 L	21-Sep-17 19:27	1
13C2-PFOA	IS	91.2	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
13C8-PFOS	IS	101	60 - 130		B7I0079	16-Sep-17	0.113 L	21-Sep-17 19:27	1
13C5-PFNA	IS	98.4	50 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
13C2-PFDA	IS	84.9	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
d3-MeFOSAA	IS	65.9	50 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
13C2-PFUnA	IS	84.7	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
d5-EtFOSAA	IS	71.7	50 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
13C2-PFDoA	IS	89.7	30 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1
13C2-PFTeDA	IS	46.4	20 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 02:53	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-U-GW — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Groundwater
Date Collected: 29-Aug-17 12:15

Laboratory Data

Lab Sample: 1701173-03
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
PFHxA	3.02	2.40		B7I0079	16-Sep-17	0.104 L	21-Sep-17 19:40	1
PFHpA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
PFHxS	ND	2.40		B7I0079	16-Sep-17	0.104 L	21-Sep-17 19:40	1
PFOA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
PFOS	2.51	1.20	B	B7I0079	16-Sep-17	0.104 L	21-Sep-17 19:40	1
PFNA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
PFDA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
MeFOSAA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
PFUnA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
EtFOSAA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
PFDoA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
PFTrDA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
PFTeDA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	173	60 - 150	H	B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
13C2-PFHxA	IS	89.5	70 - 130		B7I0079	16-Sep-17	0.104 L	21-Sep-17 19:40	1
13C4-PFHpA	IS	98.9	60 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
18O2-PFHxS	IS	95.8	60 - 130		B7I0079	16-Sep-17	0.104 L	21-Sep-17 19:40	1
13C2-PFOA	IS	103	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
13C8-PFOS	IS	98.5	60 - 130		B7I0079	16-Sep-17	0.104 L	21-Sep-17 19:40	1
13C5-PFNA	IS	95.4	50 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
13C2-PFDA	IS	105	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
d3-MeFOSAA	IS	76.5	50 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
13C2-PFUnA	IS	89.6	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
d5-EtFOSAA	IS	77.4	50 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
13C2-PFDoA	IS	102	30 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1
13C2-PFTeDA	IS	58.5	20 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:04	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-N-GW — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Groundwater
Date Collected: 29-Aug-17 13:25

Laboratory Data

Lab Sample: 1701173-04
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	7.19	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
PFHxA	2.75	2.36		B7I0079	16-Sep-17	0.106 L	21-Sep-17 19:53	1
PFHpA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
PFHxS	83.4	2.36		B7I0079	16-Sep-17	0.106 L	21-Sep-17 19:53	1
PFOA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
PFOS	2.84	1.18	B	B7I0079	16-Sep-17	0.106 L	21-Sep-17 19:53	1
PFNA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
PFDA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
MeFOSAA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
PFUnA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
EtFOSAA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
PFDoA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
PFTrDA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
PFTeDA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	157	60 - 150	H	B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
13C2-PFHxA	IS	97.6	70 - 130		B7I0079	16-Sep-17	0.106 L	21-Sep-17 19:53	1
13C4-PFHpA	IS	93.5	60 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
18O2-PFHxS	IS	87.5	60 - 130		B7I0079	16-Sep-17	0.106 L	21-Sep-17 19:53	1
13C2-PFOA	IS	91.9	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
13C8-PFOS	IS	105	60 - 130		B7I0079	16-Sep-17	0.106 L	21-Sep-17 19:53	1
13C5-PFNA	IS	88.7	50 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
13C2-PFDA	IS	88.7	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
d3-MeFOSAA	IS	83.2	50 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
13C2-PFUnA	IS	95.9	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
d5-EtFOSAA	IS	79.0	50 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
13C2-PFDoA	IS	95.8	30 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1
13C2-PFTeDA	IS	45.1	20 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:15	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-G-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX

Matrix: Groundwater
Date Collected: 29-Aug-17 14:38

Laboratory Data

Lab Sample: 1701173-05
Date Received: 31-Aug-17 09:06

Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	27.2	2.25		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
PFHxA	14400	92.7	D	B7I0079	16-Sep-17	0.108 L	26-Sep-17 01:17	40
PFHpA	5860	45.0	D	B7H0199	05-Sep-17	0.111 L	25-Sep-17 11:44	20
PFHxS	200	2.32		B7I0079	16-Sep-17	0.108 L	21-Sep-17 20:05	1
PFOA	5410	45.0	D	B7H0199	05-Sep-17	0.111 L	25-Sep-17 11:44	20
PFOS	56.2	1.16	B	B7I0079	16-Sep-17	0.108 L	21-Sep-17 20:05	1
PFNA	772	2.25		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
PFDA	14.5	2.25		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
MeFOSAA	ND	2.25		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
PFUnA	ND	2.25		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
EtFOSAA	ND	2.25		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
PFDoA	ND	2.25		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
PFTrDA	ND	2.25		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
PFTeDA	ND	2.25		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	241	60 - 150	H	B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
13C2-PFHxA	IS	123	70 - 130	D	B7I0079	16-Sep-17	0.108 L	26-Sep-17 01:17	40
13C4-PFHpA	IS	93.5	60 - 150	D	B7H0199	05-Sep-17	0.111 L	25-Sep-17 11:44	20
18O2-PFHxS	IS	105	60 - 130		B7I0079	16-Sep-17	0.108 L	21-Sep-17 20:05	1
13C2-PFOA	IS	65.6	60 - 130	D	B7H0199	05-Sep-17	0.111 L	25-Sep-17 11:44	20
13C8-PFOS	IS	104	60 - 130		B7I0079	16-Sep-17	0.108 L	21-Sep-17 20:05	1
13C5-PFNA	IS	82.1	50 - 130		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
13C2-PFDA	IS	74.1	60 - 130		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
d3-MeFOSAA	IS	68.4	50 - 150		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
13C2-PFUnA	IS	95.4	60 - 130		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
d5-EtFOSAA	IS	67.4	50 - 150		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
13C2-PFDoA	IS	101	30 - 130		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1
13C2-PFTeDA	IS	53.2	20 - 150		B7H0199	05-Sep-17	0.111 L	16-Sep-17 03:25	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-F-GW — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Groundwater
Date Collected: 29-Aug-17 15:38

Laboratory Data

Lab Sample: 1701173-06
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	21.8	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
PFHxA	11100	94.6	D	B7I0079	16-Sep-17	0.106 L	26-Sep-17 01:30	40
PFHpA	5240	43.4	D	B7H0199	05-Sep-17	0.115 L	25-Sep-17 11:56	20
PFHxS	347	2.36		B7I0079	16-Sep-17	0.106 L	21-Sep-17 20:18	1
PFOA	5410	43.4	D	B7H0199	05-Sep-17	0.115 L	25-Sep-17 11:56	20
PFOS	138	1.18	B	B7I0079	16-Sep-17	0.106 L	21-Sep-17 20:18	1
PFNA	5070	43.4	D	B7H0199	05-Sep-17	0.115 L	25-Sep-17 11:56	20
PFDA	22.7	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
MeFOSAA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
PFUnA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
EtFOSAA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
PFDoA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
PFTrDA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
PFTeDA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	228	60 - 150	H	B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
13C2-PFHxA	IS	93.6	70 - 130	D	B7I0079	16-Sep-17	0.106 L	26-Sep-17 01:30	40
13C4-PFHpA	IS	91.9	60 - 150	D	B7H0199	05-Sep-17	0.115 L	25-Sep-17 11:56	20
18O2-PFHxS	IS	89.8	60 - 130		B7I0079	16-Sep-17	0.106 L	21-Sep-17 20:18	1
13C2-PFOA	IS	141	60 - 130	D, H	B7H0199	05-Sep-17	0.115 L	25-Sep-17 11:56	20
13C8-PFOS	IS	95.7	60 - 130		B7I0079	16-Sep-17	0.106 L	21-Sep-17 20:18	1
13C5-PFNA	IS	47.0	50 - 130	D, H	B7H0199	05-Sep-17	0.115 L	25-Sep-17 11:56	20
13C2-PFDA	IS	79.7	60 - 130		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
d3-MeFOSAA	IS	69.2	50 - 150		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
13C2-PFUnA	IS	96.7	60 - 130		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
d5-EtFOSAA	IS	89.1	50 - 150		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
13C2-PFDoA	IS	101	30 - 130		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1
13C2-PFTeDA	IS	50.0	20 - 150		B7H0199	05-Sep-17	0.115 L	16-Sep-17 03:36	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-S-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Groundwater
Date Collected: 28-Aug-17 17:20

Laboratory Data

Lab Sample: 1701173-07
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
PFHxA	6.28	2.19		B7I0079	16-Sep-17	0.114 L	21-Sep-17 20:30	1
PFHpA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
PFHxS	3.90	2.19		B7I0079	16-Sep-17	0.114 L	21-Sep-17 20:30	1
PFOA	5.36	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
PFOS	2.25	1.09	B	B7I0079	16-Sep-17	0.114 L	21-Sep-17 20:30	1
PFNA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
PFDA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
MeFOSAA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
PFUnA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
EtFOSAA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
PFDoA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
PFTrDA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
PFTeDA	ND	2.12		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	159	60 - 150	H	B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
13C2-PFHxA	IS	99.5	70 - 130		B7I0079	16-Sep-17	0.114 L	21-Sep-17 20:30	1
13C4-PFHpA	IS	97.8	60 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
18O2-PFHxS	IS	94.5	60 - 130		B7I0079	16-Sep-17	0.114 L	21-Sep-17 20:30	1
13C2-PFOA	IS	103	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
13C8-PFOS	IS	91.7	60 - 130		B7I0079	16-Sep-17	0.114 L	21-Sep-17 20:30	1
13C5-PFNA	IS	91.5	50 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
13C2-PFDA	IS	79.6	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
d3-MeFOSAA	IS	76.9	50 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
13C2-PFUnA	IS	99.0	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
d5-EtFOSAA	IS	81.7	50 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
13C2-PFDoA	IS	104	30 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1
13C2-PFTeDA	IS	37.9	20 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 03:47	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-R-GW — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Groundwater
Date Collected: 28-Aug-17 15:45

Laboratory Data

Lab Sample: 1701173-08
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
PFHxA	3.88	2.38		B7I0079	16-Sep-17	0.105 L	21-Sep-17 20:43	1
PFHpA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
PFHxS	4.82	2.38		B7I0079	16-Sep-17	0.105 L	21-Sep-17 20:43	1
PFOA	12.3	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
PFOS	18.8	1.19	B	B7I0079	16-Sep-17	0.105 L	21-Sep-17 20:43	1
PFNA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
PFDA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
MeFOSAA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
PFUnA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
EtFOSAA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
PFDoA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
PFTrDA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
PFTeDA	ND	2.13		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	75.1	60 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
13C2-PFHxA	IS	66.2	70 - 130	H	B7I0079	16-Sep-17	0.105 L	21-Sep-17 20:43	1
13C4-PFHpA	IS	44.5	60 - 150	H	B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
18O2-PFHxS	IS	66.2	60 - 130		B7I0079	16-Sep-17	0.105 L	21-Sep-17 20:43	1
13C2-PFOA	IS	61.2	60 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
13C8-PFOS	IS	79.9	60 - 130		B7I0079	16-Sep-17	0.105 L	21-Sep-17 20:43	1
13C5-PFNA	IS	43.6	50 - 130	H	B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
13C2-PFDA	IS	46.5	60 - 130	H	B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
d3-MeFOSAA	IS	67.9	50 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
13C2-PFUnA	IS	55.6	60 - 130	H	B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
d5-EtFOSAA	IS	60.8	50 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
13C2-PFDoA	IS	62.0	30 - 130		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1
13C2-PFTeDA	IS	25.6	20 - 150		B7H0199	05-Sep-17	0.118 L	16-Sep-17 04:30	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-Q-GW — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Groundwater
Date Collected: 28-Aug-17 12:30

Laboratory Data

Lab Sample: 1701173-09
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
PFHxA	11.1	2.16		B7I0079	16-Sep-17	0.116 L	21-Sep-17 20:55	1
PFHpA	4.21	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
PFHxS	7.61	2.16		B7I0079	16-Sep-17	0.116 L	21-Sep-17 20:55	1
PFOA	27.2	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
PFOS	6.09	1.08	B	B7I0079	16-Sep-17	0.116 L	21-Sep-17 20:55	1
PFNA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
PFDA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
MeFOSAA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
PFUnA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
EtFOSAA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
PFDoA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
PFTrDA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
PFTeDA	ND	2.20		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	161	60 - 150	H	B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
13C2-PFHxA	IS	85.3	70 - 130		B7I0079	16-Sep-17	0.116 L	21-Sep-17 20:55	1
13C4-PFHpA	IS	97.0	60 - 150		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
18O2-PFHxS	IS	89.0	60 - 130		B7I0079	16-Sep-17	0.116 L	21-Sep-17 20:55	1
13C2-PFOA	IS	96.2	60 - 130		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
13C8-PFOS	IS	94.6	60 - 130		B7I0079	16-Sep-17	0.116 L	21-Sep-17 20:55	1
13C5-PFNA	IS	97.1	50 - 130		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
13C2-PFDA	IS	94.1	60 - 130		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
d3-MeFOSAA	IS	72.3	50 - 150		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
13C2-PFUnA	IS	99.9	60 - 130		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
d5-EtFOSAA	IS	71.5	50 - 150		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
13C2-PFDoA	IS	94.8	30 - 130		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1
13C2-PFTeDA	IS	44.0	20 - 150		B7H0199	05-Sep-17	0.114 L	16-Sep-17 04:40	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-P-GW — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Groundwater
Date Collected: 28-Aug-17 14:37

Laboratory Data

Lab Sample: 1701173-10
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
PFHxA	17.9	2.21		B7I0079	16-Sep-17	0.113 L	21-Sep-17 21:46	1
PFHpA	9.78	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
PFHxS	44.5	2.21		B7I0079	16-Sep-17	0.113 L	21-Sep-17 21:46	1
PFOA	149	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
PFOS	4.87	1.11	B	B7I0079	16-Sep-17	0.113 L	21-Sep-17 21:46	1
PFNA	ND	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
PFDA	ND	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
MeFOSAA	ND	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
PFUnA	ND	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
EtFOSAA	ND	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
PFDoA	ND	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
PFTrDA	ND	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
PFTeDA	ND	2.15		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	158	60 - 150	H	B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
13C2-PFHxA	IS	42.7	70 - 130	H	B7I0079	16-Sep-17	0.113 L	21-Sep-17 21:46	1
13C4-PFHpA	IS	98.0	60 - 150		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
18O2-PFHxS	IS	44.9	60 - 130	H	B7I0079	16-Sep-17	0.113 L	21-Sep-17 21:46	1
13C2-PFOA	IS	95.5	60 - 130		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
13C8-PFOS	IS	53.8	60 - 130	H	B7I0079	16-Sep-17	0.113 L	21-Sep-17 21:46	1
13C5-PFNA	IS	97.4	50 - 130		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
13C2-PFDA	IS	103	60 - 130		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
d3-MeFOSAA	IS	55.5	50 - 150		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
13C2-PFUnA	IS	73.6	60 - 130		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
d5-EtFOSAA	IS	70.4	50 - 150		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
13C2-PFDoA	IS	84.3	30 - 130		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1
13C2-PFTeDA	IS	45.8	20 - 150		B7H0199	05-Sep-17	0.116 L	16-Sep-17 04:51	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: MH-1 **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Surface Water
Date Collected: 29-Aug-17 09:53

Laboratory Data

Lab Sample: 1701173-11
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	86.3	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
PFHxA	1170	42.8	D	B7I0079	16-Sep-17	0.117 L	26-Sep-17 01:42	20
PFHpA	425	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
PFHxS	852	42.8	D	B7I0079	16-Sep-17	0.117 L	26-Sep-17 01:42	20
PFOA	1220	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
PFOS	6610	21.4	B, D	B7I0079	16-Sep-17	0.117 L	26-Sep-17 01:42	20
PFNA	118	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
PFDA	9.95	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
MeFOSAA	ND	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
PFUnA	ND	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
EtFOSAA	ND	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
PFDoA	ND	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
PFTrDA	ND	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
PFTeDA	ND	2.16		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	159	60 - 150	H	B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
13C2-PFHxA	IS	95.0	70 - 130	D	B7I0079	16-Sep-17	0.117 L	26-Sep-17 01:42	20
13C4-PFHpA	IS	86.0	60 - 150		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
18O2-PFHxS	IS	91.7	60 - 130	D	B7I0079	16-Sep-17	0.117 L	26-Sep-17 01:42	20
13C2-PFOA	IS	99.8	60 - 130		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
13C8-PFOS	IS	116	60 - 130	D	B7I0079	16-Sep-17	0.117 L	26-Sep-17 01:42	20
13C5-PFNA	IS	88.1	50 - 130		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
13C2-PFDA	IS	90.3	60 - 130		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
d3-MeFOSAA	IS	67.8	50 - 150		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
13C2-PFUnA	IS	108	60 - 130		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
d5-EtFOSAA	IS	67.9	50 - 150		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
13C2-PFDoA	IS	103	30 - 130		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1
13C2-PFTeDA	IS	48.4	20 - 150		B7H0199	05-Sep-17	0.116 L	16-Sep-17 05:02	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: MH-2 **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Surface Water
Date Collected: 29-Aug-17 08:30

Laboratory Data

Lab Sample: 1701173-12
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	5.06	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
PFHxA	304	2.17		B7I0079	16-Sep-17	0.115 L	21-Sep-17 22:11	1
PFHpA	174	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
PFHxS	21.5	2.17		B7I0079	16-Sep-17	0.115 L	21-Sep-17 22:11	1
PFOA	175	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
PFOS	28.0	1.09	B	B7I0079	16-Sep-17	0.115 L	21-Sep-17 22:11	1
PFNA	13.6	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
PFDA	ND	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
MeFOSAA	ND	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
PFUnA	ND	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
EtFOSAA	ND	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
PFDoA	ND	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
PFTrDA	ND	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
PFTeDA	ND	2.32		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	164	60 - 150	H	B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
13C2-PFHxA	IS	95.4	70 - 130		B7I0079	16-Sep-17	0.115 L	21-Sep-17 22:11	1
13C4-PFHpA	IS	85.9	60 - 150		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
18O2-PFHxS	IS	89.7	60 - 130		B7I0079	16-Sep-17	0.115 L	21-Sep-17 22:11	1
13C2-PFOA	IS	93.7	60 - 130		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
13C8-PFOS	IS	95.1	60 - 130		B7I0079	16-Sep-17	0.115 L	21-Sep-17 22:11	1
13C5-PFNA	IS	92.2	50 - 130		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
13C2-PFDA	IS	83.7	60 - 130		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
d3-MeFOSAA	IS	72.9	50 - 150		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
13C2-PFUnA	IS	83.2	60 - 130		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
d5-EtFOSAA	IS	61.3	50 - 150		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
13C2-PFDoA	IS	89.9	30 - 130		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1
13C2-PFTeDA	IS	30.1	20 - 150		B7H0199	05-Sep-17	0.108 L	16-Sep-17 05:13	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OF1N-NW **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Surface Water
Date Collected: 29-Aug-17 10:30

Laboratory Data

Lab Sample: 1701173-13
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	33.6	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
PFHxA	357	2.18		B7I0079	16-Sep-17	0.115 L	21-Sep-17 22:23	1
PFHpA	132	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
PFHxS	352	2.18		B7I0079	16-Sep-17	0.115 L	21-Sep-17 22:23	1
PFOA	441	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
PFOS	2650	10.9	B, D	B7I0079	16-Sep-17	0.115 L	26-Sep-17 01:55	10
PFNA	39.6	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
PFDA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
MeFOSAA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
PFUnA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
EtFOSAA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
PFDoA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
PFTrDA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
PFTeDA	ND	2.17		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	144	60 - 150		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
13C2-PFHxA	IS	97.5	70 - 130		B7I0079	16-Sep-17	0.115 L	21-Sep-17 22:23	1
13C4-PFHpA	IS	93.7	60 - 150		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
18O2-PFHxS	IS	97.7	60 - 130		B7I0079	16-Sep-17	0.115 L	21-Sep-17 22:23	1
13C2-PFOA	IS	89.1	60 - 130		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
13C8-PFOS	IS	98.0	60 - 130	D	B7I0079	16-Sep-17	0.115 L	26-Sep-17 01:55	10
13C5-PFNA	IS	85.7	50 - 130		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
13C2-PFDA	IS	87.6	60 - 130		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
d3-MeFOSAA	IS	69.6	50 - 150		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
13C2-PFUnA	IS	74.9	60 - 130		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
d5-EtFOSAA	IS	95.8	50 - 150		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
13C2-PFDoA	IS	101	30 - 130		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1
13C2-PFTeDA	IS	42.4	20 - 150		B7H0199	05-Sep-17	0.115 L	16-Sep-17 05:23	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: Ditch_1 **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Location: PDX
Matrix: Surface Water
Date Collected: 29-Aug-17 10:10

Laboratory Data

Lab Sample: 1701173-14
Date Received: 31-Aug-17 09:06
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	111	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
PFHxA	450	68.0	D	B7I0079	16-Sep-17	0.110 L	26-Sep-17 02:07	60
PFHpA	351	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
PFHxS	2180	136	D	B7I0079	16-Sep-17	0.110 L	26-Sep-17 02:07	60
PFOA	1110	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
PFOS	14500	68.0	B, D	B7I0079	16-Sep-17	0.110 L	26-Sep-17 02:07	60
PFNA	482	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
PFDA	10.3	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
MeFOSAA	ND	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
PFUnA	ND	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
EtFOSAA	ND	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
PFDoA	ND	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
PFTrDA	ND	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
PFTeDA	ND	2.23		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	167	60 - 150	H	B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
13C2-PFHxA	IS	99.6	70 - 130	D	B7I0079	16-Sep-17	0.110 L	26-Sep-17 02:07	60
13C4-PFHpA	IS	96.7	60 - 150		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
18O2-PFHxS	IS	106	60 - 130	D	B7I0079	16-Sep-17	0.110 L	26-Sep-17 02:07	60
13C2-PFOA	IS	95.4	60 - 130		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
13C8-PFOS	IS	96.4	60 - 130	D	B7I0079	16-Sep-17	0.110 L	26-Sep-17 02:07	60
13C5-PFNA	IS	82.3	50 - 130		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
13C2-PFDA	IS	95.5	60 - 130		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
d3-MeFOSAA	IS	78.0	50 - 150		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
13C2-PFUnA	IS	93.8	60 - 130		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
d5-EtFOSAA	IS	80.9	50 - 150		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
13C2-PFDoA	IS	111	30 - 130		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1
13C2-PFTeDA	IS	67.2	20 - 150		B7H0199	05-Sep-17	0.112 L	16-Sep-17 05:34	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The associated compound concentration exceeded the calibration range of the instrument.**
H	**Recovery and/or RPD was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*****	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701173 Temp: 1.1 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: **PDX Fire Training Facility** PO#: **1264-02** Sampler: **Kyle kline** (name)

TAT (check one): Standard: [X] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashleigh Fines	**Apex Companies**	**3015 SW 1st Ave**	**Portland**	**OR**	**503-924-4704**	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kyle Kline Kyle K	8/30/17	1100	Marissa Sparks MSparks	8/31/17	0918
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

Method of Shipment:

ATTN: Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537: PFOA/ PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below	EPA Method 537(DW only): PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
B-T-GW	**8/29/17**	**922**	**PDX**	**2**	**GW**	**AQ**			X						
B-O-GW	**8/29/17**	**1055**	**PDX**	**2**	**GW**	**AQ**			X						
B-U-GW	**8/29/17**	**1215**	**PDX**	**2**	**GW**	**AQ**			X						
B-N-GW	**8/29/17**	**1325**	**PDX**	**2**	**GW**	**AQ**			X						
B-G-GW	**8/29/17**	**1438**	**PDX**	**2**	**GW**	**AQ**			X						
B-F-GW	**8/29/17**	**1538**	**PDX**	**2**	**GW**	**AQ**			X						
B-S-GW	**8/28/17**	**1720**	**PDX**	**2**	**GW**	**AQ**			X						
B-R-GW	**8/28/17**	**1545**	**PDX**	**2**	**GW**	**AQ**			X						
B-Q-GW	**8/28/17**	**1230**	**PDX**	**2**	**GW**	**AQ**			X						
B-P-GW	**8/28/17**	**1437**	**PDX**	**2**	**GW**	**AQ**			X						

Special Instructions/Comments: **PLEASE HOLD SOIL SAMPLES FOR ANALYSIS**
Please report draft results as soon as possible.

SEND DOCUMENTATION AND RESULTS TO:

Name: **Ashleigh Fines, Kelsi Evans**
Company: **Apex companies**
Address: **3015 SW 1st Ave**
City: **Portland** State: OR Zip: 97201
Phone: **503-924-4704** Fax:
Email: Kelsi.Evans@apexcos.com, Afines@apexcos.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other:

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701173 Temp: 1.1 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: **PDX Fire Training Facility** PO#: **1264-02** Sampler: **Kyle Kline** (name)

TAT (check one): Standard: X 21 days; Rush (surcharge may apply): ☐ 14 days ☐ 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashliegh Fines	**Apex Companies**	**3015 SW 1st Ave**	**Portland**	**OR**	**503-924-4704**	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kyle Kline Kyle Kline	8/30/17	1100	Marissa Sparks MSparks	8/31/17	0918
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

Method of Shipment:

ATTN: Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537: PFOA/ PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below	EPA Method 537(DW only): PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
MH-1	8/29/17	953	PDX	2	SW	AQ			X						
MH-2	8/29/17	830	PDX	2	SW	AQ			X						
OF1N-NW	8/29/17	1030	PDX	2	SW	AQ			X						
Ditch_1	8/29/17	1010	PDX	2	SW	AQ			X						
* B-T-1 (6-12")	8/29/17	848	PDX	1		SO			H						HOLD SOIL SAMPLES
* B-T-2 (6.5-7')	8/29/17	853	PDX	1		SO			H						HOLD SOIL SAMPLES
* B-O-1 (0-12")	8/29/17	1010	PDX	1		SO			H						HOLD SOIL SAMPLES
* B-O-2 (11.5-12')	8/29/17	1025	PDX	1		SO			H						HOLD SOIL SAMPLES
* B-U-1 (6-12")	8/29/17	1127	PDX	1		SO			H						HOLD SOIL SAMPLES
* B-U-2 (9.5-10')	8/29/17	1150	PDX	1		SO			H						HOLD SOIL SAMPLES

Special Instructions/Comments: **PLEASE HOLD SOIL SAMPLES FOR ANALYSIS**
*1701175

SEND DOCUMENTATION AND RESULTS TO:

Name: **Ashleigh Fines, Kelsi Evans**
Company: **Apex companies**
Address: **3015 SW 1st Ave**
City: **Portland** State: OR Zip: 97201
Phone: **503-924-4704** Fax:
Email: Kelsi.Evans@apexcos.com, Afines@apexcos.com

Container Types: P= HDPE, PJ= HDPE Jar, O = Other:

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701173 TAT Std

Samples Arrival:	**Date/Time** 8/31/17 0906	**Initials:** WS	**Location:** WR-2 **Shelf/Rack:** N/3
Logged In:	**Date/Time** 08/31/17 1553	**Initials:** BLB	**Location:** WR-2 **Shelf/Rack:** E4

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None

Temp °C: 1.0	(uncorrected)	**Time:** 0917	**Thermometer ID:** IR-1
Temp °C: 1.0	(corrected)	**Probe used:** Yes☐ No☒	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 7701 4851 4070	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?						✓
Preservation Documented:	$Na_2S_2O_3$	Trizma	(None)	(Yes)	No	NA
Shipping Container	(Vista)	Client	(Retain)	Return	Dispose	

Comments: All sample have particulate present. Sample label placed on bag of A/B samples. Sample containers the label is not present. Samples are being maintained in the bag they were received in.

October 18, 2017

Vista Work Order No. 1701175

Ms. Ashleigh Fines
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

Dear Ms. Fines,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on August 31, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name 'PDX Fire Training Facility'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Karen J. Volpendesta for

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1701175
Case Narrative

Sample Condition on Receipt:

Twenty soil samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. Per client request upon receipt, all samples were placed on hold. As requested, samples "B-F-1 (6-12")" and "B-G-1 (6-12")" were removed from hold on September 27, 2017.

It was noted that Sample ID "B-U-1 (6-12')" on the Chain-of-Custody (CoC) did not match the Sample ID on the bottle of "B-U-1 (6.5-12')". Per client request, the Sample ID from the CoC was used for sample reporting. Also, sample "B-P-2 (3.5-4')" had a collection time on the CoC of "1311" but the bottle collection time was "1402". Per client request, "1402" is the correct collection time.

Analytical Notes:

VAL-PFAS

The samples were extracted and analyzed for a selected list of PFAS using VAL Method PFAS. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B7J0006-BLK1	B7J0006-BLK1	VAL - PFAS	13C2-PFUnA	H	58.4

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701175-01	B-T-1 (6-12')	29-Aug-17 08:48	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-02	B-T-2 (6.5-7')	29-Aug-17 08:53	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-03	B-O-1 (0-12')	29-Aug-17 10:10	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-04	B-O-2 (11.5-12')	29-Aug-17 10:25	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-05	B-U-1 (6-12')	29-Aug-17 11:27	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-06	B-U-2 (9.5-10')	29-Aug-17 11:50	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-07	B-N-1 (6-12')	29-Aug-17 12:50	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-08	B-N-2 (3.5-4')	29-Aug-17 12:58	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-09	B-G-1 (6-12')	29-Aug-17 13:55	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-10	B-G-2 (9-9.5')	29-Aug-17 14:10	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-11	B-F-1 (6-12')	29-Aug-17 14:58	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-12	B-F-2 (6-6.5')	29-Aug-17 15:20	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-13	B-S-1 (6-12')	28-Aug-17 16:45	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-14	B-S-2 (6.5-7')	28-Aug-17 17:06	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-15	B-R-1 (6-12')	28-Aug-17 15:20	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-16	B-R-2 (6-6.5')	28-Aug-17 15:26	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-17	B-Q-1 (6-12')	28-Aug-17 12:40	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-18	B-Q-2 (6.5-7')	28-Aug-17 12:09	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-19	B-P-1 (6-12')	28-Aug-17 13:11	31-Aug-17 09:06	HDPE Jar, 6 oz
1701175-20	B-P-2 (3.5-4')	28-Aug-17 14:02	31-Aug-17 09:06	HDPE Jar, 6 oz

ANALYTICAL RESULTS

Sample ID: Method Blank

VAL - PFAS

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Solid

Laboratory Data

Lab Sample: B7J0006-BLK1
Column: BEH C18

Analyte	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFHxA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFHpA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFHxS	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFOA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFOS	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFNA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFDA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
MeFOSAA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFUnA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
EtFOSAA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFDoA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFTrDA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
PFTeDA	ND	2.00		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	138	60 - 150		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
13C2-PFHxA	IS	88.6	70 - 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
13C4-PFHpA	IS	71.6	60 - 150		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
18O2-PFHxS	IS	90.1	60 - 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
13C2-PFOA	IS	92.1	60 - 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
13C8-PFOS	IS	100	60 - 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
13C5-PFNA	IS	74.7	50 - 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
13C2-PFDA	IS	66.6	60 - 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
d3-MeFOSAA	IS	55.0	50 - 150		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
13C2-PFUnA	IS	58.4	60 - 130	H	B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
d5-EtFOSAA	IS	55.3	50 - 150		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
13C2-PFDoA	IS	59.0	30 - 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1
13C2-PFTeDA	IS	69.1	20 - 150		B7J0006	02-Oct-17	1.00 g	04-Oct-17 02:28	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR **VAL - PFAS**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility

Matrix: Solid

Laboratory Data

Lab Sample: B7J0006-BS1 Column: BEH C18

Analyte	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	7.93	10.0	79.3	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFHxA	8.30	10.0	83.0	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFHpA	8.94	10.0	89.4	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFHxS	8.52	10.0	85.2	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFOA	8.31	10.0	83.1	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFOS	8.19	10.0	81.9	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFNA	8.55	10.0	85.5	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFDA	8.97	10.0	89.7	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
MeFOSAA	9.21	10.0	92.1	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFUnA	8.51	10.0	85.1	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
EtFOSAA	8.48	10.0	84.8	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFDoA	9.67	10.0	96.7	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFTrDA	9.24	10.0	92.4	60-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
PFTeDA	8.20	10.0	82.0	70-130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	141	60- 150		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
13C2-PFHxA	IS	94.9	70- 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
13C4-PFHpA	IS	81.7	60- 150		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
18O2-PFHxS	IS	91.6	60- 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
13C2-PFOA	IS	84.4	60- 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
13C8-PFOS	IS	83.1	60- 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
13C5-PFNA	IS	78.2	50- 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
13C2-PFDA	IS	81.8	60- 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
d3-MeFOSAA	IS	58.8	50- 150		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
13C2-PFUnA	IS	65.2	60- 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
d5-EtFOSAA	IS	57.6	50- 150		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
13C2-PFDoA	IS	70.3	30- 130		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1
13C2-PFTeDA	IS	68.9	20- 150		B7J0006	02-Oct-17	1.00 g	04-Oct-17 01:44	1

Sample ID: B-G-1 (6-12')

VAL - PFAS

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Soil
Date Collected: 29-Aug-17 13:55

Laboratory Data

Lab Sample: 1701175-09
Date Received: 31-Aug-17 09:06
% Solids: 94.6
Column: BEH C18

Analyte	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFHxA	6.37	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFHpA	4.64	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFHxS	ND	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFOA	13.1	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFOS	6.31	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFNA	22.5	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFDA	6.62	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
MeFOSAA	ND	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFUnA	ND	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
EtFOSAA	ND	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFDoA	ND	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFTrDA	ND	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
PFTeDA	ND	1.94		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	141	60 - 150		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
13C2-PFHxA	IS	94.7	70 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
13C4-PFHpA	IS	73.4	60 - 150		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
18O2-PFHxS	IS	77.6	60 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
13C2-PFOA	IS	91.2	60 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
13C8-PFOS	IS	89.5	60 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
13C5-PFNA	IS	77.7	50 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
13C2-PFDA	IS	86.6	60 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
d3-MeFOSAA	IS	65.9	50 - 150		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
13C2-PFUnA	IS	83.3	60 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
d5-EtFOSAA	IS	59.5	50 - 150		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
13C2-PFDoA	IS	90.2	30 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1
13C2-PFTeDA	IS	92.6	20 - 150		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:13	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-F-1 (6-12')

VAL - PFAS

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Soil
Date Collected: 29-Aug-17 14:58

Laboratory Data

Lab Sample: 1701175-11
Date Received: 31-Aug-17 09:06
% Solids: 95.0
Column: BEH C18

Analyte	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFHxA	2.19	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFHpA	2.57	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFHxS	ND	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFOA	11.4	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFOS	2.68	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFNA	42.3	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFDA	2.03	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
MeFOSAA	ND	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFUnA	ND	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
EtFOSAA	ND	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFDoA	ND	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFTrDA	ND	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
PFTeDA	ND	1.93		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	146	60 - 150		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
13C2-PFHxA	IS	87.8	70 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
13C4-PFHpA	IS	78.1	60 - 150		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
18O2-PFHxS	IS	88.6	60 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
13C2-PFOA	IS	82.5	60 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
13C8-PFOS	IS	84.0	60 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
13C5-PFNA	IS	70.9	50 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
13C2-PFDA	IS	64.7	60 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
d3-MeFOSAA	IS	60.1	50 - 150		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
13C2-PFUnA	IS	78.5	60 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
d5-EtFOSAA	IS	58.3	50 - 150		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
13C2-PFDoA	IS	71.0	30 - 130		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1
13C2-PFTeDA	IS	81.2	20 - 150		B7J0006	02-Oct-17	1.09 g	04-Oct-17 06:56	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The associated compound concentration exceeded the calibration range of the instrument.**
H	**Recovery and/or RPD was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*****	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

EXACT COPY OF ORIGINAL
Init BZB 08/31/17

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701175 Temp: 1.1 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: **PDX Fire Training Facility** PO#: **1264-02** Sampler: **Kyle Kline** (name)

TAT (check one): Standard: [X] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashliegh Fines	**Apex Companies**	**3015 SW 1st Ave**	**Portland**	**OR**	**503-924-4704**	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kyle Kline Kyle Kline	8/30/17	1100	Marissa Sparks MSparks	8/31/17	0918
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: _____

Method of Shipment: _____

Tracking No.: _____

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537: PFOA/ PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below	EPA Method 537(DW only): PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
* MH-1	8/29/17	953	PDX	2	SW	AQ			X						
* MH-2	8/29/17	830	PDX	2	SW	AQ			X						
* OF1N-NW	8/29/17	1030	PDX	2	SW	AQ			X						
* Ditch_1	8/29/17	1010	PDX	2	SW	AQ			X						
B-T-1 (6-12")	8/29/17	848	PDX	1		SO			H						HOLD SOIL SAMPLES
B-T-2 (6.5-7')	8/29/17	853	PDX	1		SO			H						HOLD SOIL SAMPLES
B-O-1 (0-12")	8/29/17	1010	PDX	1		SO			H						HOLD SOIL SAMPLES
B-O-2 (11.5-12')	8/29/17	1025	PDX	1		SO			H						HOLD SOIL SAMPLES
B-U-1 (6-12")	8/29/17	1127	PDX	1		SO			H						HOLD SOIL SAMPLES
B-U-2 (9.5-10')	8/29/17	1150	PDX	1		SO			H						HOLD SOIL SAMPLES

Special Instructions/Comments: **PLEASE HOLD SOIL SAMPLES FOR ANALYSIS**

*1701173

SEND DOCUMENTATION AND RESULTS TO:

Name: **Ashleigh Fines, Kelsi Evans**
Company: **Apex companies**
Address: **3015 SW 1st Ave**
City: **Portland** State: **OR** Zip: **97201**
Phone: **503-924-4704** Fax: _____
Email: **Kelsi.Evans@apexcos.com, Afines@apexcos.com**

Container Types: P= HDPE, PJ= HDPE Jar, O = Other: _____

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701175 Temp: 1.1 °C
Storage ID: WR-2 Storage Secured: Yes ☐ No ☐

Project ID: **PDX Fire Training Facility** PO#: **1264-02** Sampler: **Kyle Kline** (name)

TAT (check one): Standard: [X] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashliegh Fines	**Apex Companies**	**3015 SW 1st Ave**	**Portland**	**OR**	**503-924-4704**	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kyle Kline	8/30/17	1100	Marissa Sparks	8/31/17	0919
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: _____

Method of Shipment: _____

Tracking No.: _____

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537 PFOA/PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below	EPA Method 537(DW only) PFOA/PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
B-N-1 (6-12")	**8/29/17**	**1250**	**PDX**	1		SO			H						**HOLD SOIL SAMPLES**
B-N-2 (3.5-4')	**8/29/17**	**1258**	**PDX**	1		SO			H						**HOLD SOIL SAMPLES**
B-G-1 (6-12")	**8/29/17**	**1355**	**PDX**	1		SO			H						**HOLD SOIL SAMPLES**
B-G-2 (9-9.5')	**8/29/17**	**1410**	**PDX**	1		SO			H						**HOLD SOIL SAMPLES**
B-F-1 (6-12")	**8/29/17**	**1458**	**PDX**	1		SO			H						**HOLD SOIL SAMPLES**
B-F-2 (6-6.5')	**8/29/17**	**1520**	**PDX**	1		SO			H						**HOLD SOIL SAMPLES**
B-S-1 (6-12")	**8/28/17**	**1645**	**PDX**	1		SO			H						**HOLD SOIL SAMPLES**
B-S-2 (6.5-7')	**8/28/17**	**1706**	**PDX**	1		SO			H						**HOLD SOIL SAMPLES**
B-R-1 (6-12")	**8/28/17**	**1520**	**PDX**	1		SO			H						**HOLD SOIL SAMPLES**
B-R-2 (6-6.5')	**8/28/17**	**1526**	**PDX**	1		SO			H						**HOLD SOIL SAMPLES**

Special Instructions/Comments: **PLEASE HOLD SOIL SAMPLES FOR ANALYSIS**

SEND DOCUMENTATION AND RESULTS TO:

Name: **Ashleigh Fines, Kelsi Evans**
Company: **Apex companies**
Address: **3015 SW 1st Ave**
City: **Portland** State: OR Zip: 97201
Phone: **503-924-4704** Fax: _____
Email: Kelsi.Evans@apexcos.com, Afines@apexcos.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other: _____

Bottle Preservation Type: T = Thiosulfate
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701175 Temp: 1.1 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: **PDX Fire Training Facility** PO#: **1264-02** Sampler: **Kyle Kline** (name)

TAT (check one): Standard: [X] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashliegh Fines	**Apex Companies**	**3015 SW 1st Ave**	**Portland**	**OR**	**503-924-4704**	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kyle Kline	8/30/17	1100	Marissa Sparks	8/31/17	0919
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

Method of Shipment:

ATTN:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537: PFOA/PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below	EPA Method 537(DW only): PFOA/PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
B-Q-1 (6-12")	**8/28/17**	**1240**	**PDX**	**1**		**SO**			**H**						**HOLD SOIL SAMPLES**
B-Q-2 (6.5-7')	**8/28/17**	**1209**	**PDX**	**1**		**SO**			**H**						**HOLD SOIL SAMPLES**
B-P-1 (6-12")	**8/28/17**	**1311**	**PDX**	**1**		**SO**			**H**						**HOLD SOIL SAMPLES**
B-P-2 (3.5-4')	**8/28/17**	**1311**	**PDX**	**1**		**SO**			**H**						**HOLD SOIL SAMPLES**

Special Instructions/Comments: **PLEASE HOLD SOIL SAMPLES FOR ANALYSIS**

SEND DOCUMENTATION AND RESULTS TO:

Name: **Ashleigh Fines, Kelsi Evans**
Company: **Apex companies**
Address: **3015 SW 1st Ave**
City: **Portland** State: OR Zip: 97201
Phone: **503-924-4704** Fax:
Email: Kelsi.Evans@apexcos.com, Afines@apexcos.com

Container Types: P= HDPE, PJ= HDPE Jar, O = Other:

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701175 **TAT** Hold

Samples Arrival:	**Date/Time** 8/31/17 0906	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** L/3
Logged In:	**Date/Time** 08/31/17 1616	**Initials:** BSB	**Location:** WR-2 **Shelf/Rack:** G4

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None
Temp °C: 1.0 (uncorrected)	**Time:** 0917				**Thermometer ID:** IR-1	
Temp °C: 1.0 (corrected)	**Probe used:** Yes☐ No☒					

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 7701 4851 4076	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?	✓		

If Chlorinated or Drinking Water Samples, Acceptable Preservation?						✓
Preservation Documented:	$Na_2S_2O_3$	Trizma	None		Yes	No	(NA)
Shipping Container	(Vista)	Client	(Retain)	Return		Dispose	

Comments: ~~Sample~~ Label ID: B-U-1 (6.5-12")
Sample ID: B-U-1 (6-12')
B-P-2 (3.5-4') collection time on label 1402 on COC: 1311

Chain of Custody Anomaly/Sample Acceptance Form

Vista Analytical Laboratory

Client:	Apex Companies, LLC	Workorder Number:	1701175
Contact:	Ashleigh Fines	Date Received:	31-Aug-17 09:06
Email:	AFines@apexcos.com	Documented by/date:	B.Benedict 08/06/2017
Phone:	(503) 924-4704		

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

Thank you,

Martha Maier
mmaier@vista-analytical.com
916-673-1520

The following information or item is needed to proceed with analysis:

☐ Complete Chain-of-Custody	☐ Preservative	☐ Collector's Name
☐ Test Method Requested	☐ Sample Identification	☐ Sample Type
☐ Analyte List Requested	☒ Sample Collection Time: **See**	☐ Sample Location
☐ Other:		

The following anomalies were noted. Authorization is needed to proceed with analysis.

☐ Temperature outside < 6°C Range Samples Affected: _____

Temperature _____°C Ice Present? Yes No Melted

☒ Sample ID Discrepancy: **See Comments**	☐ Insufficient Sample Size
☐ Sample Holding Time Missed	☐ Sample Container(s) Broken
☐ Custody Seals Broken	☐ Incorrect Container Type

Comments: Sample: B-P-2 (3.5-4') collection time on COC:**1311** collection time on sample label: **1402** Do not match

COC ID:	Sample label ID
B-U-1 (6-12')	B-U-1 (6.5-12')

Client Authorization

Proceed with Analysis: (YES) NO Signature and Date Karen J. Noth 10-18-17

Client Comments/Instructions Per email from client on 9-7-17, the correct collection time for B-P-2 (3.5-4') is 1402. The sample ID of "B-U-1 (6-12')".

October 27, 2017

Vista Work Order No. 1701384

Ms. Ashleigh Fines
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

Dear Ms. Fines,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 04, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name 'PDX Fire Training Facility'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1701384
Case Narrative

Sample Condition on Receipt:

Nine groundwater samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. As requested, sample "Cascade Water" was placed on hold. The TOP Assay was subcontracted and the results will be reported separately.

Analytical Notes:

Modified EPA Method 537

The samples were extracted and analyzed for a selected list of PFAS using Modified EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

The recoveries of all internal standards in the QC and field samples were within the acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701384-01	MW-6	26-Sep-17 12:30	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701384-02	MW-8	26-Sep-17 12:02	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701384-03	MW-13	26-Sep-17 11:20	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701384-04	MW-14	26-Sep-17 10:55	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701384-05	MW-6-DUP	26-Sep-17 12:30	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701384-06	SW-2	27-Sep-17 13:30	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701384-07	SW-3	27-Sep-17 12:30	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701384-08	Equipment Blank	26-Sep-17 13:15	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701384-09	Cascade Water	02-Oct-17 18:43	04-Oct-17 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Aqueous

Laboratory Data

Lab Sample: B7J0049-BLK1
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFHxA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFHpA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFHxS	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFOA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFOS	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFNA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFDA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
MeFOSAA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFUnA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
EtFOSAA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFDoA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFTrDA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFTeDA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	111	60 - 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFHxA	IS	92.0	70 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C4-PFHpA	IS	79.2	60 - 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
18O2-PFHxS	IS	100	60 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFOA	IS	89.6	60 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C8-PFOS	IS	87.4	60 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C5-PFNA	IS	79.7	50 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFDA	IS	65.2	60 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
d3-MeFOSAA	IS	63.6	50 - 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFUnA	IS	64.5	60 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
d5-EtFOSAA	IS	63.8	50 - 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFDoA	IS	63.3	30 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFTeDA	IS	79.2	20 - 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Aqueous

Laboratory Data

Lab Sample: B7J0049-BS1
Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	75.6	80.0	94.5	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFHxA	78.2	80.0	97.8	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFHpA	75.1	80.0	93.8	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFHxS	81.5	80.0	102	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFOA	74.0	80.0	92.5	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFOS	65.5	80.0	81.9	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFNA	82.8	80.0	103	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFDA	80.1	80.0	100	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
MeFOSAA	87.6	80.0	110	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFUnA	83.5	80.0	104	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
EtFOSAA	79.0	80.0	98.8	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFDoA	90.2	80.0	113	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFTrDA	93.5	80.0	117	60-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFTeDA	80.2	80.0	100	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	118	60- 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFHxA	IS	96.2	70- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C4-PFHpA	IS	76.8	60- 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
18O2-PFHxS	IS	93.8	60- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFOA	IS	90.3	60- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C8-PFOS	IS	103	60- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C5-PFNA	IS	82.1	50- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFDA	IS	69.4	60- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
d3-MeFOSAA	IS	67.5	50- 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFUnA	IS	75.8	60- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
d5-EtFOSAA	IS	72.1	50- 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFDoA	IS	75.2	30- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFTeDA	IS	94.3	20- 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1

Sample ID: MW-6

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 26-Sep-17 12:30

Laboratory Data

Lab Sample: 1701384-01
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	11.0	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
PFHxA	338	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
PFHpA	240	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
PFHxS	459	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
PFOA	383	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
PFOS	1080	10.7	D	B7J0049	10-Oct-17	0.117 L	26-Oct-17 15:13	10
PFNA	149	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
PFDA	11.3	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
MeFOSAA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
PFUnA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
EtFOSAA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
PFDoA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
PFTrDA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
PFTeDA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	119	60 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
13C2-PFHxA	IS	95.0	70 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
13C4-PFHpA	IS	79.3	60 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
18O2-PFHxS	IS	93.3	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
13C2-PFOA	IS	88.8	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
13C8-PFOS	IS	94.1	60 - 130	D	B7J0049	10-Oct-17	0.117 L	26-Oct-17 15:13	10
13C5-PFNA	IS	88.3	50 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
13C2-PFDA	IS	73.8	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
d3-MeFOSAA	IS	68.8	50 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
13C2-PFUnA	IS	81.2	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
d5-EtFOSAA	IS	69.9	50 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
13C2-PFDoA	IS	70.6	30 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1
13C2-PFTeDA	IS	80.5	20 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:17	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: MW-8

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 26-Sep-17 12:02

Laboratory Data

Lab Sample: 1701384-02
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	62.7	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFHxA	428	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFHpA	30.1	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFHxS	66.6	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFOA	165	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFOS	130	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFNA	9.95	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFDA	ND	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
MeFOSAA	ND	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFUnA	ND	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
EtFOSAA	ND	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFDoA	ND	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFTrDA	ND	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
PFTeDA	ND	1.11		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	114	60 - 150		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
13C2-PFHxA	IS	90.7	70 - 130		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
13C4-PFHpA	IS	83.8	60 - 150		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
18O2-PFHxS	IS	87.1	60 - 130		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
13C2-PFOA	IS	92.7	60 - 130		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
13C8-PFOS	IS	85.6	60 - 130		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
13C5-PFNA	IS	78.2	50 - 130		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
13C2-PFDA	IS	72.3	60 - 130		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
d3-MeFOSAA	IS	68.4	50 - 150		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
13C2-PFUnA	IS	78.3	60 - 130		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
d5-EtFOSAA	IS	74.0	50 - 150		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
13C2-PFDoA	IS	85.0	30 - 130		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1
13C2-PFTeDA	IS	87.9	20 - 150		B7J0049	10-Oct-17	0.112 L	11-Oct-17 19:38	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: MW-13

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 26-Sep-17 11:20

Laboratory Data

Lab Sample: 1701384-03
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	10.9	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFHxA	750	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFHpA	475	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFHxS	301	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFOA	717	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFOS	1040	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFNA	394	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFDA	29.5	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
MeFOSAA	ND	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFUnA	ND	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
EtFOSAA	ND	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFDoA	ND	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFTrDA	ND	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
PFTeDA	ND	1.06		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	117	60 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
13C2-PFHxA	IS	92.7	70 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
13C4-PFHpA	IS	79.3	60 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
18O2-PFHxS	IS	97.8	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
13C2-PFOA	IS	89.7	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
13C8-PFOS	IS	95.9	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
13C5-PFNA	IS	80.4	50 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
13C2-PFDA	IS	73.4	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
d3-MeFOSAA	IS	67.4	50 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
13C2-PFUnA	IS	71.7	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
d5-EtFOSAA	IS	69.0	50 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
13C2-PFDoA	IS	73.0	30 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1
13C2-PFTeDA	IS	88.4	20 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 19:59	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: MW-14

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 26-Sep-17 10:55

Laboratory Data

Lab Sample: 1701384-04
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	9.26	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
PFHxA	73.1	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
PFHpA	59.5	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
PFHxS	157	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
PFOA	98.8	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
PFOS	1710	43.3	D	B7J0049	10-Oct-17	0.115 L	11-Oct-17 23:34	40
PFNA	66.0	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
PFDA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
MeFOSAA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
PFUnA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
EtFOSAA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
PFDoA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
PFTrDA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
PFTeDA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	116	60 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
13C2-PFHxA	IS	89.0	70 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
13C4-PFHpA	IS	70.7	60 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
18O2-PFHxS	IS	97.9	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
13C2-PFOA	IS	75.9	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
13C8-PFOS	IS	80.2	60 - 130	D	B7J0049	10-Oct-17	0.115 L	11-Oct-17 23:34	40
13C5-PFNA	IS	89.1	50 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
13C2-PFDA	IS	68.1	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
d3-MeFOSAA	IS	74.3	50 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
13C2-PFUnA	IS	71.4	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
d5-EtFOSAA	IS	75.4	50 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
13C2-PFDoA	IS	85.5	30 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1
13C2-PFTeDA	IS	92.6	20 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:21	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: MW-6-DUP

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 26-Sep-17 12:30

Laboratory Data

Lab Sample: 1701384-05
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	12.1	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
PFHxA	351	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
PFHpA	249	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
PFHxS	456	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
PFOA	439	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
PFOS	1160	43.4	D	B7J0049	10-Oct-17	0.115 L	11-Oct-17 23:44	40
PFNA	158	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
PFDA	10.4	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
MeFOSAA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
PFUnA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
EtFOSAA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
PFDoA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
PFTrDA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
PFTeDA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	115	60 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
13C2-PFHxA	IS	93.1	70 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
13C4-PFHpA	IS	82.9	60 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
18O2-PFHxS	IS	94.2	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
13C2-PFOA	IS	83.4	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
13C8-PFOS	IS	96.5	60 - 130	D	B7J0049	10-Oct-17	0.115 L	11-Oct-17 23:44	40
13C5-PFNA	IS	83.9	50 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
13C2-PFDA	IS	73.8	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
d3-MeFOSAA	IS	77.5	50 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
13C2-PFUnA	IS	88.2	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
d5-EtFOSAA	IS	89.1	50 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
13C2-PFDoA	IS	94.6	30 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1
13C2-PFTeDA	IS	104	20 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 20:42	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: SW-2 **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 27-Sep-17 13:30

Laboratory Data

Lab Sample: 1701384-06
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	11.3	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFHxA	97.6	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFHpA	47.0	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFHxS	113	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFOA	131	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFOS	545	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFNA	21.4	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFDA	3.96	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
MeFOSAA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFUnA	1.78	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
EtFOSAA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFDoA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFTrDA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
PFTeDA	ND	1.07		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	112	60 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
13C2-PFHxA	IS	90.4	70 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
13C4-PFHpA	IS	78.4	60 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
18O2-PFHxS	IS	89.1	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
13C2-PFOA	IS	85.5	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
13C8-PFOS	IS	91.7	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
13C5-PFNA	IS	75.2	50 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
13C2-PFDA	IS	82.9	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
d3-MeFOSAA	IS	67.4	50 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
13C2-PFUnA	IS	72.5	60 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
d5-EtFOSAA	IS	81.3	50 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
13C2-PFDoA	IS	92.2	30 - 130		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1
13C2-PFTeDA	IS	106	20 - 150		B7J0049	10-Oct-17	0.117 L	11-Oct-17 21:03	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Vista Analytical Laboratory

Sample ID: SW-3

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 27-Sep-17 12:30

Laboratory Data

Lab Sample: 1701384-07
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	8.51	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFHxA	63.1	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFHpA	27.0	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFHxS	54.0	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFOA	76.8	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFOS	323	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFNA	12.6	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFDA	3.50	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
MeFOSAA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFUnA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
EtFOSAA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFDoA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFTrDA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
PFTeDA	ND	1.08		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	107	60 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
13C2-PFHxA	IS	93.8	70 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
13C4-PFHpA	IS	78.7	60 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
18O2-PFHxS	IS	94.0	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
13C2-PFOA	IS	87.6	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
13C8-PFOS	IS	89.3	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
13C5-PFNA	IS	83.7	50 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
13C2-PFDA	IS	82.6	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
d3-MeFOSAA	IS	70.9	50 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
13C2-PFUnA	IS	89.2	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
d5-EtFOSAA	IS	73.5	50 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
13C2-PFDoA	IS	81.9	30 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1
13C2-PFTeDA	IS	93.9	20 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:25	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: Equipment Blank

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Water
Date Collected: 26-Sep-17 13:15

Laboratory Data

Lab Sample: 1701384-08
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFHxA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFHpA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFHxS	1.17	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFOA	2.06	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFOS	1.31	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFNA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFDA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
MeFOSAA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFUnA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
EtFOSAA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFDoA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFTrDA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
PFTeDA	ND	1.09		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	112	60 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
13C2-PFHxA	IS	94.4	70 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
13C4-PFHpA	IS	73.5	60 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
18O2-PFHxS	IS	94.1	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
13C2-PFOA	IS	92.5	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
13C8-PFOS	IS	96.0	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
13C5-PFNA	IS	82.3	50 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
13C2-PFDA	IS	77.3	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
d3-MeFOSAA	IS	65.5	50 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
13C2-PFUnA	IS	75.5	60 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
d5-EtFOSAA	IS	67.3	50 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
13C2-PFDoA	IS	68.8	30 - 130		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1
13C2-PFTeDA	IS	61.1	20 - 150		B7J0049	10-Oct-17	0.115 L	11-Oct-17 21:46	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The associated compound concentration exceeded the calibration range of the instrument.**
H	**Recovery and/or RPD was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*****	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701384 Temp: 1.7 °C
Storage ID: WR-2 Storage Secured: Yes [X] No [ ]

Project ID: PDX Fire Training Facility PO#: 1264-03 Sampler: Kyle Kline / Jake Munsey (name)

TAT (check one): Standard: [X] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashleigh Fines	Apex Companies	3015 SW 1st Ave	Portland	OR	503-924-4704	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kelsi Evans	10-3-17	1400	Marissa Sparks	10/4/17	0945
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

Method of Shipment:

ATTN: Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Container(s) Type	Container(s) Matrix	Mod. EPA Method 537: PFOA/PFOS	Mod. EPA Method 537: UCMR3 PFAS List:6	Mod. EPA Method 537: 537 List: 14	Mod. EPA Method 537: Full List of 26	Mod. EPA Method 537: Other: Please List Below	EPA Method 537(DW only): PFOA/PFOS	EPA Method 537(DW only): UCMR3 PFAS List:6	EPA Method 537(DW only): PFAS List: 14	Comments
MW-4	9/26/17	1300		2	P	GW					X TOP Assay (14 analytes; 537 mod.)				High PFC concentrations
MW-6	9/26/17	1230		2	P	GW			X						Potential high concentrations; no historical.
MW-8	9/26/17	1202		2	P	GW			X						Potential high concentrations; no historical.
MW-13	9/26/17	1120		2	P	GW			X						Potential high concentrations; no historical.
MW-14	9/26/17	1055		2	P	GW			X						Potential high concentrations; no historical.
MW-6-DUP	9/26/17	1230		2	P	GW			X						Potential high concentrations; no historical.
SW-2	9/27/17	1330		2	P	SW			X						Potential high concentrations; no historical.
SW-3	9/27/17	1230		2	P	SW			X						Potential high concentrations; no historical.
Cascade Water	10/2/17	1843		2	P	W			X						Hold
Equipment Blank	9/26/17	1315		2	P	W			X						

Special Instructions/Comments: Sub TOP Assay to TestAmerica West Sacramento. Need concentrations before oxidation, after oxidation and the difference.

SEND DOCUMENTATION AND RESULTS TO:

Name: Ashleigh Fines and Kelsi Evans
Company: see above
Address:
City: State: Zip:
Phone: Fax:
Email: afines@apexcos.com; kelsi.evans@apexcos.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other:

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701384 **TAT** Std

Samples Arrival:	**Date/Time** 10/4/17 0935	**Initials:** MWS	**Location:** WR-2 **Shelf/Rack:** N/a
Logged In:	**Date/Time** 10/4/17 1304	**Initials:** SR	**Location:** WR-2 **Shelf/Rack:** B5

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None

Temp °C: 1.6	(uncorrected)	**Time:** 0944	**Thermometer ID:** IR-1
Temp °C: 1.7	(corrected)	**Probe used:** Yes☐ No☒	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 7704 1012 0620	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?						✓
Preservation Documented:	$Na_2S_2O_3$	Trizma	None		Yes	No	(NA)
Shipping Container	Vista	(Client)	Retain	Return		Dispose	

Comments:

October 27, 2017

Vista Work Order No. 1701385

Ms. Ashleigh Fines
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

Dear Ms. Fines,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 04, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name 'PDX Fire Training Facility'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1701385
Case Narrative

Sample Condition on Receipt:

Thirteen groundwater samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

Modified EPA Method 537

The samples were extracted and analyzed for a selected list of PFAS using Modified EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1701385-06	B-H-GW	Modified EPA Method 537	13C2-PFUnA	H	57.7
B7J0060-BLK1	B7J0060-BLK1	Modified EPA Method 537	13C2-PFUnA	H	55.2

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701385-01	B-A-GW	27-Sep-17 13:45	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-02	B-B-GW	27-Sep-17 15:10	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-03	B-C-GW	27-Sep-17 16:30	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-04	B-D-GW	27-Sep-17 15:30	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-05	B-E-GW	27-Sep-17 11:20	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-06	B-H-GW	28-Sep-17 13:50	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-07	B-I-GW	28-Sep-17 12:05	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-08	B-J-GW	28-Sep-17 10:25	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-09	B-K-GW	28-Sep-17 09:03	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-10	B-L-GW	28-Sep-17 15:28	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-11	B-V-GW	29-Sep-17 10:35	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-12	B-W-GW	29-Sep-17 09:10	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1701385-13	B-X-GW	29-Sep-17 12:06	04-Oct-17 09:35	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Aqueous

Laboratory Data

Lab Sample: B7J0060-BLK1
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFHxA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFHpA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFHxS	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFOA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFOS	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFNA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFDA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
MeFOSAA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFUnA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
EtFOSAA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFDoA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFTrDA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
PFTeDA	ND	1.00		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	99.4	60 - 150		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
13C2-PFHxA	IS	101	70 - 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
13C4-PFHpA	IS	85.7	60 - 150		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
18O2-PFHxS	IS	88.4	60 - 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
13C2-PFOA	IS	79.9	60 - 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
13C8-PFOS	IS	81.0	60 - 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
13C5-PFNA	IS	65.6	50 - 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
13C2-PFDA	IS	81.2	60 - 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
d3-MeFOSAA	IS	55.2	50 - 150		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
13C2-PFUnA	IS	55.2	60 - 130	H	B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
d5-EtFOSAA	IS	59.8	50 - 150		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
13C2-PFDoA	IS	63.3	30 - 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1
13C2-PFTeDA	IS	72.5	20 - 150		B7J0060	11-Oct-17	0.125 L	12-Oct-17 19:28	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Vista Analytical Laboratory

Sample ID: OPR

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Aqueous

Laboratory Data

Lab Sample: B7J0060-BS1
Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	159	160	99.3	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFHxA	156	160	97.5	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFHpA	171	160	107	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFHxS	161	160	100	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFOA	170	160	106	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFOS	162	160	101	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFNA	180	160	112	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFDA	159	160	99.4	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
MeFOSAA	161	160	101	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFUnA	144	160	90.2	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
EtFOSAA	157	160	98.3	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFDoA	153	160	95.9	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFTrDA	174	160	109	60-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
PFTeDA	165	160	103	70-130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	98.7	60- 150		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
13C2-PFHxA	IS	90.9	70- 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
13C4-PFHpA	IS	83.1	60- 150		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
18O2-PFHxS	IS	83.2	60- 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
13C2-PFOA	IS	81.5	60- 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
13C8-PFOS	IS	84.0	60- 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
13C5-PFNA	IS	70.0	50- 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
13C2-PFDA	IS	79.8	60- 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
d3-MeFOSAA	IS	65.2	50- 150		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
13C2-PFUnA	IS	71.3	60- 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
d5-EtFOSAA	IS	66.8	50- 150		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
13C2-PFDoA	IS	65.7	30- 130		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1
13C2-PFTeDA	IS	76.6	20- 150		B7J0060	11-Oct-17	0.125 L	12-Oct-17 18:55	1

Vista Analytical Laboratory

Sample ID: B-A-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 27-Sep-17 13:45

Laboratory Data

Lab Sample: 1701385-01
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	4.57	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFHxA	13.0	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFHpA	13.3	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFHxS	23.9	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFOA	32.9	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFOS	1.70	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFNA	ND	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFDA	ND	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
MeFOSAA	ND	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFUnA	ND	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
EtFOSAA	ND	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFDoA	ND	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFTrDA	ND	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
PFTeDA	ND	1.06		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	96.8	60 - 150		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
13C2-PFHxA	IS	92.1	70 - 130		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
13C4-PFHpA	IS	80.7	60 - 150		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
18O2-PFHxS	IS	82.6	60 - 130		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
13C2-PFOA	IS	81.8	60 - 130		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
13C8-PFOS	IS	84.1	60 - 130		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
13C5-PFNA	IS	80.9	50 - 130		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
13C2-PFDA	IS	75.6	60 - 130		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
d3-MeFOSAA	IS	70.5	50 - 150		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
13C2-PFUnA	IS	68.4	60 - 130		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
d5-EtFOSAA	IS	72.0	50 - 150		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
13C2-PFDoA	IS	79.4	30 - 130		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1
13C2-PFTeDA	IS	81.6	20 - 150		B7J0060	11-Oct-17	0.118 L	12-Oct-17 23:45	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-B-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 27-Sep-17 15:10

Laboratory Data

Lab Sample: 1701385-02
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFHxA	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFHpA	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFHxS	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFOA	1.31	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFOS	2.29	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFNA	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFDA	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
MeFOSAA	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFUnA	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
EtFOSAA	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFDoA	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFTrDA	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
PFTeDA	ND	1.05		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	90.5	60 - 150		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
13C2-PFHxA	IS	86.2	70 - 130		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
13C4-PFHpA	IS	85.5	60 - 150		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
18O2-PFHxS	IS	83.3	60 - 130		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
13C2-PFOA	IS	81.4	60 - 130		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
13C8-PFOS	IS	76.0	60 - 130		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
13C5-PFNA	IS	68.8	50 - 130		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
13C2-PFDA	IS	70.7	60 - 130		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
d3-MeFOSAA	IS	70.2	50 - 150		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
13C2-PFUnA	IS	62.0	60 - 130		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
d5-EtFOSAA	IS	80.8	50 - 150		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
13C2-PFDoA	IS	71.3	30 - 130		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1
13C2-PFTeDA	IS	82.8	20 - 150		B7J0060	11-Oct-17	0.119 L	12-Oct-17 23:56	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-C-GW — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 27-Sep-17 16:30

Laboratory Data

Lab Sample: 1701385-03
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFHxA	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFHpA	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFHxS	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFOA	1.43	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFOS	3.77	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFNA	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFDA	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
MeFOSAA	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFUnA	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
EtFOSAA	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFDoA	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFTrDA	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
PFTeDA	ND	1.05		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	96.0	60 - 150		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
13C2-PFHxA	IS	89.9	70 - 130		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
13C4-PFHpA	IS	75.9	60 - 150		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
18O2-PFHxS	IS	85.4	60 - 130		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
13C2-PFOA	IS	86.7	60 - 130		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
13C8-PFOS	IS	81.8	60 - 130		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
13C5-PFNA	IS	66.6	50 - 130		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
13C2-PFDA	IS	83.0	60 - 130		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
d3-MeFOSAA	IS	83.5	50 - 150		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
13C2-PFUnA	IS	71.8	60 - 130		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
d5-EtFOSAA	IS	94.4	50 - 150		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
13C2-PFDoA	IS	68.7	30 - 130		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1
13C2-PFTeDA	IS	76.8	20 - 150		B7J0060	11-Oct-17	0.119 L	13-Oct-17 00:39	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-D-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 27-Sep-17 15:30

Laboratory Data

Lab Sample: 1701385-04
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	15.7	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFHxA	38.2	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFHpA	24.6	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFHxS	112	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFOA	93.6	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFOS	4.73	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFNA	1.87	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFDA	ND	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
MeFOSAA	ND	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFUnA	ND	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
EtFOSAA	ND	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFDoA	ND	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFTrDA	ND	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
PFTeDA	ND	1.09		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	89.6	60 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
13C2-PFHxA	IS	87.5	70 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
13C4-PFHpA	IS	86.1	60 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
18O2-PFHxS	IS	93.8	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
13C2-PFOA	IS	79.0	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
13C8-PFOS	IS	78.3	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
13C5-PFNA	IS	72.3	50 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
13C2-PFDA	IS	75.1	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
d3-MeFOSAA	IS	70.8	50 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
13C2-PFUnA	IS	66.2	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
d5-EtFOSAA	IS	72.4	50 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
13C2-PFDoA	IS	78.9	30 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1
13C2-PFTeDA	IS	69.1	20 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 00:50	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-E-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 27-Sep-17 11:20

Laboratory Data

Lab Sample: 1701385-05
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	8.04	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
PFHxA	3220	11.0	D	B7J0060	11-Oct-17	0.113 L	26-Oct-17 15:24	10
PFHpA	1310	11.0	D	B7J0060	11-Oct-17	0.113 L	26-Oct-17 15:24	10
PFHxS	85.4	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
PFOA	1020	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
PFOS	17.2	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
PFNA	208	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
PFDA	1.99	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
MeFOSAA	ND	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
PFUnA	ND	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
EtFOSAA	ND	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
PFDoA	ND	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
PFTrDA	ND	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
PFTeDA	ND	1.10		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	99.0	60 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
13C2-PFHxA	IS	87.8	70 - 130	D	B7J0060	11-Oct-17	0.113 L	26-Oct-17 15:24	10
13C4-PFHpA	IS	81.6	60 - 150	D	B7J0060	11-Oct-17	0.113 L	26-Oct-17 15:24	10
18O2-PFHxS	IS	81.1	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
13C2-PFOA	IS	76.7	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
13C8-PFOS	IS	77.4	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
13C5-PFNA	IS	69.0	50 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
13C2-PFDA	IS	67.3	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
d3-MeFOSAA	IS	73.0	50 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
13C2-PFUnA	IS	72.3	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
d5-EtFOSAA	IS	64.0	50 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
13C2-PFDoA	IS	77.6	30 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1
13C2-PFTeDA	IS	78.7	20 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:00	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-H-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 28-Sep-17 13:50

Laboratory Data

Lab Sample: 1701385-06
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
PFHxA	3640	11.1	D	B7J0060	11-Oct-17	0.113 L	26-Oct-17 15:36	10
PFHpA	738	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
PFHxS	18.4	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
PFOA	8810	11.1	D	B7J0060	11-Oct-17	0.113 L	26-Oct-17 15:36	10
PFOS	34.6	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
PFNA	3.35	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
PFDA	1.23	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
MeFOSAA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
PFUnA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
EtFOSAA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
PFDoA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
PFTrDA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
PFTeDA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	113	60 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
13C2-PFHxA	IS	81.0	70 - 130	D	B7J0060	11-Oct-17	0.113 L	26-Oct-17 15:36	10
13C4-PFHpA	IS	100	60 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
18O2-PFHxS	IS	83.2	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
13C2-PFOA	IS	72.6	60 - 130	D	B7J0060	11-Oct-17	0.113 L	26-Oct-17 15:36	10
13C8-PFOS	IS	72.0	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
13C5-PFNA	IS	74.6	50 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
13C2-PFDA	IS	75.4	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
d3-MeFOSAA	IS	70.4	50 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
13C2-PFUnA	IS	57.7	60 - 130	H	B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
d5-EtFOSAA	IS	75.8	50 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
13C2-PFDoA	IS	69.7	30 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1
13C2-PFTeDA	IS	73.4	20 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 01:11	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-I-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 28-Sep-17 12:05

Laboratory Data

Lab Sample: 1701385-07
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	12.7	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
PFHxA	81.2	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
PFHpA	57.3	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
PFHxS	254	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
PFOA	80.0	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
PFOS	3150	10.8	D	B7J0060	11-Oct-17	0.115 L	26-Oct-17 15:47	10
PFNA	194	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
PFDA	14.3	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
MeFOSAA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
PFUnA	1.52	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
EtFOSAA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
PFDoA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
PFTrDA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
PFTeDA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	92.5	60 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
13C2-PFHxA	IS	91.2	70 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
13C4-PFHpA	IS	83.0	60 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
18O2-PFHxS	IS	93.8	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
13C2-PFOA	IS	80.9	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
13C8-PFOS	IS	93.3	60 - 130	D	B7J0060	11-Oct-17	0.115 L	26-Oct-17 15:47	10
13C5-PFNA	IS	73.1	50 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
13C2-PFDA	IS	75.5	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
d3-MeFOSAA	IS	78.6	50 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
13C2-PFUnA	IS	93.4	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
d5-EtFOSAA	IS	74.7	50 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
13C2-PFDoA	IS	86.9	30 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1
13C2-PFTeDA	IS	101	20 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 01:21	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-J-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 28-Sep-17 10:25

Laboratory Data

Lab Sample: 1701385-08
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	16.1	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
PFHxA	377	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
PFHpA	282	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
PFHxS	763	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
PFOA	524	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
PFOS	3330	10.7	D	B7J0060	11-Oct-17	0.117 L	26-Oct-17 15:58	10
PFNA	350	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
PFDA	19.6	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
MeFOSAA	ND	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
PFUnA	1.51	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
EtFOSAA	ND	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
PFDoA	ND	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
PFTrDA	ND	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
PFTeDA	ND	1.07		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	93.5	60 - 150		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
13C2-PFHxA	IS	87.7	70 - 130		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
13C4-PFHpA	IS	80.1	60 - 150		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
18O2-PFHxS	IS	86.2	60 - 130		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
13C2-PFOA	IS	79.6	60 - 130		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
13C8-PFOS	IS	77.3	60 - 130	D	B7J0060	11-Oct-17	0.117 L	26-Oct-17 15:58	10
13C5-PFNA	IS	69.8	50 - 130		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
13C2-PFDA	IS	72.7	60 - 130		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
d3-MeFOSAA	IS	72.5	50 - 150		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
13C2-PFUnA	IS	81.4	60 - 130		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
d5-EtFOSAA	IS	72.1	50 - 150		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
13C2-PFDoA	IS	90.7	30 - 130		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1
13C2-PFTeDA	IS	86.3	20 - 150		B7J0060	11-Oct-17	0.117 L	13-Oct-17 01:43	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-K-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 28-Sep-17 09:03

Laboratory Data

Lab Sample: 1701385-09
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	16.7	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFHxA	72.0	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFHpA	57.9	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFHxS	317	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFOA	221	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFOS	513	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFNA	33.6	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFDA	1.59	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
MeFOSAA	ND	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFUnA	ND	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
EtFOSAA	ND	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFDoA	ND	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFTrDA	ND	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
PFTeDA	ND	1.06		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	88.5	60 - 150		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
13C2-PFHxA	IS	85.1	70 - 130		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
13C4-PFHpA	IS	80.7	60 - 150		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
18O2-PFHxS	IS	89.2	60 - 130		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
13C2-PFOA	IS	74.5	60 - 130		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
13C8-PFOS	IS	77.5	60 - 130		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
13C5-PFNA	IS	67.9	50 - 130		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
13C2-PFDA	IS	71.9	60 - 130		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
d3-MeFOSAA	IS	84.3	50 - 150		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
13C2-PFUnA	IS	80.2	60 - 130		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
d5-EtFOSAA	IS	76.1	50 - 150		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
13C2-PFDoA	IS	78.0	30 - 130		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1
13C2-PFTeDA	IS	75.4	20 - 150		B7J0060	11-Oct-17	0.118 L	13-Oct-17 02:04	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-L-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 28-Sep-17 15:28

Laboratory Data

Lab Sample: 1701385-10
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFHxA	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFHpA	2.32	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFHxS	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFOA	20.7	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFOS	2.01	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFNA	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFDA	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
MeFOSAA	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFUnA	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
EtFOSAA	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFDoA	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFTrDA	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
PFTeDA	ND	1.09		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	90.8	60 - 150		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
13C2-PFHxA	IS	91.4	70 - 130		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
13C4-PFHpA	IS	82.4	60 - 150		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
18O2-PFHxS	IS	90.9	60 - 130		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
13C2-PFOA	IS	71.8	60 - 130		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
13C8-PFOS	IS	74.2	60 - 130		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
13C5-PFNA	IS	64.2	50 - 130		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
13C2-PFDA	IS	69.8	60 - 130		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
d3-MeFOSAA	IS	73.4	50 - 150		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
13C2-PFUnA	IS	69.6	60 - 130		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
d5-EtFOSAA	IS	72.4	50 - 150		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
13C2-PFDoA	IS	72.7	30 - 130		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1
13C2-PFTeDA	IS	62.0	20 - 150		B7J0060	11-Oct-17	0.114 L	13-Oct-17 02:26	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-V-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 29-Sep-17 10:35

Laboratory Data

Lab Sample: 1701385-11
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	14.1	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFHxA	40.6	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFHpA	38.4	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFHxS	96.5	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFOA	234	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFOS	27.5	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFNA	7.55	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFDA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
MeFOSAA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFUnA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
EtFOSAA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFDoA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFTrDA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
PFTeDA	ND	1.11		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	97.0	60 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
13C2-PFHxA	IS	88.7	70 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
13C4-PFHpA	IS	91.9	60 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
18O2-PFHxS	IS	90.0	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
13C2-PFOA	IS	70.8	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
13C8-PFOS	IS	83.8	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
13C5-PFNA	IS	64.6	50 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
13C2-PFDA	IS	77.7	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
d3-MeFOSAA	IS	75.0	50 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
13C2-PFUnA	IS	70.9	60 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
d5-EtFOSAA	IS	74.3	50 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
13C2-PFDoA	IS	76.6	30 - 130		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1
13C2-PFTeDA	IS	71.2	20 - 150		B7J0060	11-Oct-17	0.113 L	13-Oct-17 02:37	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-W-GW

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 29-Sep-17 09:10

Laboratory Data

Lab Sample: 1701385-12
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFHxA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFHpA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFHxS	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFOA	1.83	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFOS	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFNA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFDA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
MeFOSAA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFUnA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
EtFOSAA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFDoA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFTrDA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
PFTeDA	ND	1.08		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	88.6	60 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
13C2-PFHxA	IS	84.8	70 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
13C4-PFHpA	IS	82.9	60 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
18O2-PFHxS	IS	90.6	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
13C2-PFOA	IS	78.3	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
13C8-PFOS	IS	81.9	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
13C5-PFNA	IS	72.7	50 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
13C2-PFDA	IS	66.8	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
d3-MeFOSAA	IS	84.3	50 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
13C2-PFUnA	IS	77.4	60 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
d5-EtFOSAA	IS	75.2	50 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
13C2-PFDoA	IS	70.1	30 - 130		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1
13C2-PFTeDA	IS	72.4	20 - 150		B7J0060	11-Oct-17	0.115 L	13-Oct-17 02:47	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-X-GW **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 29-Sep-17 12:06

Laboratory Data

Lab Sample: 1701385-13
Date Received: 04-Oct-17 09:35
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	20.0	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFHxA	114	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFHpA	106	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFHxS	169	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFOA	204	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFOS	13.7	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFNA	3.46	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFDA	ND	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
MeFOSAA	ND	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFUnA	ND	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
EtFOSAA	ND	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFDoA	ND	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFTrDA	ND	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
PFTeDA	ND	1.08		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	89.6	60 - 150		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
13C2-PFHxA	IS	84.5	70 - 130		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
13C4-PFHpA	IS	76.2	60 - 150		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
18O2-PFHxS	IS	79.9	60 - 130		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
13C2-PFOA	IS	86.1	60 - 130		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
13C8-PFOS	IS	82.7	60 - 130		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
13C5-PFNA	IS	71.5	50 - 130		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
13C2-PFDA	IS	72.2	60 - 130		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
d3-MeFOSAA	IS	71.8	50 - 150		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
13C2-PFUnA	IS	73.8	60 - 130		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
d5-EtFOSAA	IS	61.1	50 - 150		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
13C2-PFDoA	IS	76.4	30 - 130		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1
13C2-PFTeDA	IS	73.6	20 - 150		B7J0060	11-Oct-17	0.116 L	13-Oct-17 03:30	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The associated compound concentration exceeded the calibration range of the instrument.**
H	**Recovery and/or RPD was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*****	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701385 Temp: 1.7 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: **PDX Fire Training Facility** PO#: **1264-03** Sampler: **Kyle Kline / Jake Munsey** (name)

TAT (check one): Standard: ☒ 21 days; Rush (surcharge may apply): ☐ 14 days ☐ 7 days Specify: _____

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashleigh Fines	**Apex Companies**	**3015 SW 1st Ave**	**Portland**	**OR**	**503-924-4704**	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kelsi Evans	10-3-17	1400	Marissa Sparks MSparks	10/4/17	0946
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: _____

Method of Shipment: _____

Tracking No.: _____

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Container(s) Type	Container(s) Matrix	Mod. EPA Method 537: PFOA/ PFOS	Mod. EPA Method 537: UCMR3 PFAS List:6	Mod. EPA Method 537: 537 List: 14	Mod. EPA Method 537: Full List of 26	Mod. EPA Method 537: Other: Please List Below	EPA Method 537(DW only): PFOA/ PFOS	EPA Method 537(DW only): UCMR3 PFAS List:6	EPA Method 537(DW only): PFAS List: 14	Comments
B-A-GW	**9/27/17**	**1345**		**2**	**P**	**GW**			X						
B-B-GW	**9/27/17**	**1510**		**2**	**P**	**GW**			X						
B-C-GW	**9/27/17**	**1630**		**2**	**P**	**GW**			X						
B-D-GW	**9/27/17**	**1530**		**2**	**P**	**GW**			X						
B-E-GW	**9/27/17**	**1120**		**2**	**P**	**GW**			X						
B-H-GW	**9/28/17**	**1350**		**2**	**P**	**GW**			X						
B-I-GW	**9/28/17**	**1205**		**2**	**P**	**GW**			X						**Potential high concentrations**
B-J-GW	**9/28/17**	**1025**		**2**	**P**	**GW**			X						**Potential high concentrations**
B-K-GW	**9/28/17**	**0903**		**2**	**P**	**GW**			X						**Potential high concentrations**
B-L-GW	**9/28/17**	**1528**		**2**	**P**	**GW**			X						

Special Instructions/Comments: _____

SEND DOCUMENTATION AND RESULTS TO:

Name: **Ashleigh Fines and Kelsi Evans**
Company: **see above**
Address: _____
City: _____ State: ___ Zip: _____
Phone: _____ Fax: _____
Email: **afines@apexcos.com; kelsi.evans@apexcos.com**

Container Types: P= HDPE, PJ= HDPE Jar, O = Other: _____

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701385 Temp: 1.7 °C
Storage ID: WR-2 Storage Secured: Yes [X] No [ ]

Project ID: PDX Fire Training Facility PO#: 1264-03 Sampler: Kyle Kline / Jake Munsey (name)

TAT (check one): Standard: [X] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashleigh Fines	Apex Companies	3015 SW 1st Ave	Portland	OR	503-924-4704	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kelsi Evans	10-3-17	1400	Marissa Sparks	10/4/17	0946
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

Method of Shipment:

ATTN:

Tracking No.:

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Container(s) Type	Container(s) Matrix	Add Analysis(es) Requested: Mod. EPA Method 537 PFOA/PFOS	Mod. EPA Method 537 UCMR3 PFAS List:6	Mod. EPA Method 537 537 List: 14	Mod. EPA Method 537 Full List of 26	Mod. EPA Method 537 Other: Please List Below	EPA Method 537(DW only) PFOA/PFOS	EPA Method 537(DW only) UCMR3 PFAS List:6	EPA Method 537(DW only) PFAS List: 14	Comments
B-V-GW	9/29/17	1035		2	P	GW			X						
B-W-GW	9/29/17	0910		2	P	GW			X						
B-X-GW	9/29/17	1206		2	P	GW			X						

Special Instructions/Comments:

SEND DOCUMENTATION AND RESULTS TO:

Name: Ashleigh Fines and Kelsi Evans
Company: see above
Address:
City: State: Zip:
Phone: Fax:
Email: afines@apexcos.com; kelsi.evans@apexcos.com

Container Types: P= HDPE, PJ= HDPE Jar, O = Other:

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701385 **TAT** std

Samples Arrival:	**Date/Time** 10/4/17 0935	**Initials:** WS	**Location:** WR-2 **Shelf/Rack:** N/a
Logged In:	**Date/Time** 10/4/17 1346	**Initials:** SR	**Location:** WR-2 **Shelf/Rack:** E3

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None

Temp °C: 1.6 (uncorrected)	**Time:** 0944	**Thermometer ID:** IR-1
Temp °C: 1.7 (corrected)	**Probe used:** Yes☐ No☒	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 7704 1012 0620	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?						✓
Preservation Documented:	$Na_2S_2O_3$	Trizma	None		Yes	No	(NA)
Shipping Container	Vista	(Client)	Retain	Return	Dispose	

Comments:

October 25, 2017

Vista Work Order No. 1701392

Ms. Ashleigh Fines
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

Dear Ms. Fines,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 04, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name 'PDX Fire Training Facility'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Karen J. Volpendesta for

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1701392
Case Narrative

Sample Condition on Receipt:

One soil sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

Modified EPA Method 537

The sample was extracted and analyzed for a selected list of PFAS using Modified EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The percent recovery in the OPR for PFTrDA was above the acceptance limit at 139%; this analyte was not detected in the sample. All other OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B7J0080-BLK1	B7J0080-BLK1	VAL - PFAS	13C2-PFUnA	H	52.2

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701392-01	OF-1N Mix	27-Sep-17 14:30	04-Oct-17 09:35	HDPE Jar, 6 oz

ANALYTICAL RESULTS

Sample ID: Method Blank

VAL - PFAS

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Solid

Laboratory Data

Lab Sample: B7J0080-BLK1
Column: BEH C18

Analyte	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFHxA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFHpA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFHxS	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFOA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFOS	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFNA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFDA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
MeFOSAA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFUnA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
EtFOSAA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFDoA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFTrDA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
PFTeDA	ND	2.00		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	109	60 - 150		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
13C2-PFHxA	IS	87.2	70 - 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
13C4-PFHpA	IS	77.3	60 - 150		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
18O2-PFHxS	IS	91.9	60 - 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
13C2-PFOA	IS	85.5	60 - 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
13C8-PFOS	IS	89.0	60 - 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
13C5-PFNA	IS	86.2	50 - 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
13C2-PFDA	IS	67.9	60 - 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
d3-MeFOSAA	IS	73.6	50 - 150		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
13C2-PFUnA	IS	52.2	60 - 130	H	B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
d5-EtFOSAA	IS	65.6	50 - 150		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
13C2-PFDoA	IS	51.9	30 - 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1
13C2-PFTeDA	IS	76.8	20 - 150		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:54	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR **VAL - PFAS**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Solid

Laboratory Data

Lab Sample: B7J0080-BS1
Column: BEH C18

Analyte	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	11.1	10.0	111	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFHxA	10.9	10.0	109	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFHpA	10.4	10.0	104	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFHxS	8.73	10.0	87.3	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFOA	10.4	10.0	104	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFOS	11.5	10.0	115	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFNA	9.70	10.0	97.0	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFDA	9.76	10.0	97.6	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
MeFOSAA	10.5	10.0	105	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFUnA	11.6	10.0	116	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
EtFOSAA	10.8	10.0	108	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFDoA	10.1	10.0	101	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFTrDA	13.9	10.0	139	60-130	H	B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
PFTeDA	9.88	10.0	98.8	70-130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	110	60- 150		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
13C2-PFHxA	IS	84.5	70- 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
13C4-PFHpA	IS	73.6	60- 150		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
18O2-PFHxS	IS	86.4	60- 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
13C2-PFOA	IS	87.1	60- 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
13C8-PFOS	IS	87.0	60- 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
13C5-PFNA	IS	80.3	50- 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
13C2-PFDA	IS	75.6	60- 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
d3-MeFOSAA	IS	82.3	50- 150		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
13C2-PFUnA	IS	69.1	60- 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
d5-EtFOSAA	IS	76.8	50- 150		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
13C2-PFDoA	IS	62.7	30- 130		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1
13C2-PFTeDA	IS	83.9	20- 150		B7J0080	15-Oct-17	1.00 g	17-Oct-17 06:22	1

Sample ID: OF-1N Mix

VAL - PFAS

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Soil
Date Collected: 27-Sep-17 14:30

Laboratory Data

Lab Sample: 1701392-01
Date Received: 04-Oct-17 09:35
% Solids: 64.2
Column: BEH C18

Analyte	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFHxA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFHpA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFHxS	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFOA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFOS	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFNA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFDA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
MeFOSAA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFUnA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
EtFOSAA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFDoA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFTrDA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
PFTeDA	ND	2.05		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	101	60 - 150		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
13C2-PFHxA	IS	85.6	70 - 130		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
13C4-PFHpA	IS	67.6	60 - 150		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
18O2-PFHxS	IS	77.1	60 - 130		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
13C2-PFOA	IS	81.1	60 - 130		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
13C8-PFOS	IS	73.3	60 - 130		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
13C5-PFNA	IS	75.9	50 - 130		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
13C2-PFDA	IS	75.4	60 - 130		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
d3-MeFOSAA	IS	99.2	50 - 150		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
13C2-PFUnA	IS	80.7	60 - 130		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
d5-EtFOSAA	IS	103	50 - 150		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
13C2-PFDoA	IS	88.6	30 - 130		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1
13C2-PFTeDA	IS	99.9	20 - 150		B7J0080	15-Oct-17	1.52 g	17-Oct-17 08:53	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The associated compound concentration exceeded the calibration range of the instrument.**
H	**Recovery and/or RPD was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*****	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

EXACT COPY OF ORIGINAL
Init BAB 10/05/17

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701392 Temp: 1.4 °C
Storage ID: WR-2 Storage Secured: Yes ☐ No ☐

Project ID: **PDX Fire Training Facility** PO#: **1264-03** Sampler: **Kyle Kline / Jake Munsey** (name)

TAT (check one): Standard: [X] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashleigh Fines	**Apex Companies**	**3015 SW 1st Ave**	**Portland**	**OR**	**503-924-4704**	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kelsi Evans	10-3-17	1400	Marissa Sparks MSparks	10/4/17	0953
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

Method of Shipment: _____

ATTN: _____ Tracking No.: _____

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Container(s) Type	Matrix	Mod. EPA Method 537: PFOA/ PFOS	Mod. EPA Method 537: UCMR3 PFAS List:6	Mod. EPA Method 537: 537 List: 14	Mod. EPA Method 537: Full List of 26	Mod. EPA Method 537: Other: Please List Below	EPA Method 537(DW only): PFOA/ PFOS	EPA Method 537(DW only): UCMR3 PFAS List:6	EPA Method 537(DW only): PFAS List: 14	Comments
* B-V-1 (6"-12")	9/29/17	0940		1	P	SO			X						Hold
* B-V-2 (16'-16.5')	9/29/17	1005		1	P	SO			X						Hold
* B-V-3 (14.5'-15')	9/29/17	0955		1	P	SO			X						Hold
* B-W-1 (6"-12")	9/29/17	0831		1	P	SO			X						Hold
* B-W-2 (9.5'-10")	9/29/17	0845		1	P	SO			X						Hold
* B-X-1 (6"-12")	9/29/17	1115		1	P	SO			X						Hold
* B-X-2 (14'-14.5')	9/29/17	1130		1	P	SO			X						Hold
* OF-1N-(0"-12")	9/27/17	1430		1	P	SO			X						Hold
* OF-1N-(12"-24")	9/27/17	1430		1	P	SO			X						Hold
OF-1N Mix	9/27/17	1430		1	P	SO			X						RUN

Special Instructions/Comments: * WO 1701391

SEND DOCUMENTATION AND RESULTS TO:

Name: **Ashleigh Fines and Kelsi Evans**
Company: **see above**
Address: _____
City: _____ State: ___ Zip: _____
Phone: _____ Fax: _____
Email: **afines@apexcos.com; kelsi.evans@apexcos.com**

Container Types: P= HDPE, PJ= HDPE Jar
O = Other: _____

Bottle Preservation Type: T = Thiosulfate
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701392 **TAT** Std

Samples Arrival:	**Date/Time** 10/4/17 0935	**Initials:** WS	**Location:** WR-2 **Shelf/Rack:** N/2
Logged In:	**Date/Time** 10/05/17 0851	**Initials:** BSB WS	**Location:** WR-2 **Shelf/Rack:** A5

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None

Temp °C: 1.3	(uncorrected)	**Time:** 0950	**Thermometer ID:** IR-1
Temp °C: 1.4	(corrected)	**Probe used:** Yes☐ No☒	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 7704 1810 9659	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?						✓
Preservation Documented:	$Na_2S_2O_3$	Trizma	(None)		Yes	(No) NA
Shipping Container	(Vista)	Client	(Retain)	Return		Dispose

Comments:

October 30, 2017

Vista Work Order No. 1701412

Ms. Ashleigh Fines
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

Dear Ms. Fines,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 05, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name 'PDX Fire Training Facility'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Karen J. Volpendesta for

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1701412
Case Narrative

Sample Condition on Receipt:

Three groundwater samples and two soil samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

Modified EPA Method 537/VAL-PFAS

The samples were extracted and analyzed for a selected list of PFAS using Modified EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B7J0160-BLK1	B7J0160-BLK1	VAL - PFAS	13C2-PFUnA	H	58.0
B7J0160-BLK1	B7J0160-BLK1	VAL - PFAS	13C2-PFTeDA	H	15.7
B7J0160-BS1	B7J0160-BS1	VAL - PFAS	13C2-PFTeDA	H	13.8

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701424-01	W-TSI-GWI-100517	05-Oct-17 11:20	06-Oct-17 10:09	Amber Glass NM Bottle, 1L
				Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Aqueous

Laboratory Data

Lab Sample: B7J0049-BLK1
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFHxA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFHpA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFHxS	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFOA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFOS	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFNA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFDA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
MeFOSAA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFUnA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
EtFOSAA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFDoA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFTrDA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
PFTeDA	ND	1.00		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	111	60 - 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFHxA	IS	92.0	70 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C4-PFHpA	IS	79.2	60 - 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
18O2-PFHxS	IS	100	60 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFOA	IS	89.6	60 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C8-PFOS	IS	87.4	60 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C5-PFNA	IS	79.7	50 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFDA	IS	65.2	60 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
d3-MeFOSAA	IS	63.6	50 - 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFUnA	IS	64.5	60 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
d5-EtFOSAA	IS	63.8	50 - 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFDoA	IS	63.3	30 - 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1
13C2-PFTeDA	IS	79.2	20 - 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 19:06	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Aqueous

Laboratory Data

Lab Sample: B7J0049-BS1
Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	75.6	80.0	94.5	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFHxA	78.2	80.0	97.8	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFHpA	75.1	80.0	93.8	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFHxS	81.5	80.0	102	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFOA	74.0	80.0	92.5	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFOS	65.5	80.0	81.9	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFNA	82.8	80.0	103	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFDA	80.1	80.0	100	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
MeFOSAA	87.6	80.0	110	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFUnA	83.5	80.0	104	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
EtFOSAA	79.0	80.0	98.8	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFDoA	90.2	80.0	113	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFTrDA	93.5	80.0	117	60-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
PFTeDA	80.2	80.0	100	70-130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	118	60- 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFHxA	IS	96.2	70- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C4-PFHpA	IS	76.8	60- 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
18O2-PFHxS	IS	93.8	60- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFOA	IS	90.3	60- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C8-PFOS	IS	103	60- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C5-PFNA	IS	82.1	50- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFDA	IS	69.4	60- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
d3-MeFOSAA	IS	67.5	50- 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFUnA	IS	75.8	60- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
d5-EtFOSAA	IS	72.1	50- 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFDoA	IS	75.2	30- 130		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1
13C2-PFTeDA	IS	94.3	20- 150		B7J0049	10-Oct-17	0.250 L	11-Oct-17 18:45	1

Sample ID: MW-GW-1 (40)

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 03-Oct-17 12:50

Laboratory Data

Lab Sample: 1701412-01
Date Received: 05-Oct-17 09:53
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	61.0	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
PFHxA	223	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
PFHpA	48.2	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
PFHxS	268	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
PFOA	61.5	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
PFOS	963	2.30	D	B7J0049	10-Oct-17	0.272 L	13-Oct-17 08:41	5
PFNA	2.50	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
PFDA	ND	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
MeFOSAA	ND	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
PFUnA	ND	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
EtFOSAA	ND	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
PFDoA	ND	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
PFTrDA	ND	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
PFTeDA	ND	1.00		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	116	60 - 150		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
13C2-PFHxA	IS	93.7	70 - 130		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
13C4-PFHpA	IS	79.1	60 - 150		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
18O2-PFHxS	IS	99.6	60 - 130		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
13C2-PFOA	IS	89.8	60 - 130		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
13C8-PFOS	IS	87.8	60 - 130	D	B7J0049	10-Oct-17	0.272 L	13-Oct-17 08:41	5
13C5-PFNA	IS	86.2	50 - 130		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
13C2-PFDA	IS	78.6	60 - 130		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
d3-MeFOSAA	IS	93.7	50 - 150		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
13C2-PFUnA	IS	96.9	60 - 130		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
d5-EtFOSAA	IS	95.3	50 - 150		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
13C2-PFDoA	IS	84.0	30 - 130		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1
13C2-PFTeDA	IS	107	20 - 150		B7J0049	10-Oct-17	0.272 L	11-Oct-17 21:57	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: MW-GW-2 (61.5)

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 03-Oct-17 15:35

Laboratory Data

Lab Sample: 1701412-02
Date Received: 05-Oct-17 09:53
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	10.1	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFHxA	32.3	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFHpA	6.77	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFHxS	29.0	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFOA	9.34	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFOS	60.5	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFNA	ND	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFDA	ND	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
MeFOSAA	ND	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFUnA	ND	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
EtFOSAA	ND	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFDoA	ND	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFTrDA	ND	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
PFTeDA	ND	1.00		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	105	60 - 150		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
13C2-PFHxA	IS	91.4	70 - 130		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
13C4-PFHpA	IS	82.5	60 - 150		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
18O2-PFHxS	IS	94.9	60 - 130		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
13C2-PFOA	IS	90.3	60 - 130		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
13C8-PFOS	IS	93.3	60 - 130		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
13C5-PFNA	IS	86.6	50 - 130		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
13C2-PFDA	IS	73.5	60 - 130		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
d3-MeFOSAA	IS	78.7	50 - 150		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
13C2-PFUnA	IS	84.8	60 - 130		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
d5-EtFOSAA	IS	67.2	50 - 150		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
13C2-PFDoA	IS	68.1	30 - 130		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1
13C2-PFTeDA	IS	81.6	20 - 150		B7J0049	10-Oct-17	0.270 L	11-Oct-17 22:08	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: Equipment Blank

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Groundwater
Date Collected: 03-Oct-17 15:50

Laboratory Data

Lab Sample: 1701412-03
Date Received: 05-Oct-17 09:53
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFHxA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFHpA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFHxS	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFOA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFOS	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFNA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFDA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
MeFOSAA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFUnA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
EtFOSAA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFDoA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFTrDA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
PFTeDA	ND	1.00		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	116	60 - 150		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
13C2-PFHxA	IS	92.0	70 - 130		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
13C4-PFHpA	IS	83.1	60 - 150		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
18O2-PFHxS	IS	97.4	60 - 130		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
13C2-PFOA	IS	90.7	60 - 130		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
13C8-PFOS	IS	101	60 - 130		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
13C5-PFNA	IS	82.9	50 - 130		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
13C2-PFDA	IS	69.3	60 - 130		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
d3-MeFOSAA	IS	61.9	50 - 150		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
13C2-PFUnA	IS	68.1	60 - 130		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
d5-EtFOSAA	IS	63.5	50 - 150		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
13C2-PFDoA	IS	56.8	30 - 130		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1
13C2-PFTeDA	IS	76.2	20 - 150		B7J0049	10-Oct-17	0.263 L	11-Oct-17 22:19	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank

VAL - PFAS

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Solid

Laboratory Data

Lab Sample: B7J0160-BLK1
Column: BEH C18

Analyte	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFHxA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFHpA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFHxS	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFOA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFOS	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFNA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFDA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
MeFOSAA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFUnA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
EtFOSAA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFDoA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFTrDA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
PFTeDA	ND	2.00		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	103	60 - 150		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
13C2-PFHxA	IS	93.6	70 - 130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
13C4-PFHpA	IS	97.6	60 - 150		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
18O2-PFHxS	IS	96.0	60 - 130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
13C2-PFOA	IS	83.0	60 - 130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
13C8-PFOS	IS	105	60 - 130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
13C5-PFNA	IS	93.0	50 - 130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
13C2-PFDA	IS	79.5	60 - 130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
d3-MeFOSAA	IS	75.2	50 - 150		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
13C2-PFUnA	IS	58.0	60 - 130	H	B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
d5-EtFOSAA	IS	71.8	50 - 150		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
13C2-PFDoA	IS	57.8	30 - 130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1
13C2-PFTeDA	IS	15.7	20 - 150	H	B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:45	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR **VAL - PFAS**

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility

Matrix: Solid

Laboratory Data

Lab Sample: B7J0160-BS1 Column: BEH C18

Analyte	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	20.5	20.0	102	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFHxA	22.1	20.0	110	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFHpA	20.4	20.0	102	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFHxS	22.0	20.0	110	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFOA	22.8	20.0	114	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFOS	19.7	20.0	98.7	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFNA	20.3	20.0	101	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFDA	22.6	20.0	113	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
MeFOSAA	21.9	20.0	109	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFUnA	23.2	20.0	116	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
EtFOSAA	25.6	20.0	128	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFDoA	22.2	20.0	111	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFTrDA	16.0	20.0	79.8	60-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
PFTeDA	24.8	20.0	124	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	115	60-150		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
13C2-PFHxA	IS	95.7	70-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
13C4-PFHpA	IS	94.6	60-150		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
18O2-PFHxS	IS	99.0	60-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
13C2-PFOA	IS	86.7	60-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
13C8-PFOS	IS	97.4	60-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
13C5-PFNA	IS	93.0	50-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
13C2-PFDA	IS	74.6	60-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
d3-MeFOSAA	IS	63.1	50-150		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
13C2-PFUnA	IS	62.9	60-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
d5-EtFOSAA	IS	60.8	50-150		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
13C2-PFDoA	IS	59.4	30-130		B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1
13C2-PFTeDA	IS	13.8	20-150	H	B7J0160	24-Oct-17	1.00 g	27-Oct-17 00:34	1

Sample ID: B-M-1 (1.5-2)

VAL - PFAS

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Soil
Date Collected: 02-Oct-17 12:22

Laboratory Data

Lab Sample: 1701412-04
Date Received: 05-Oct-17 09:53
% Solids: 95.5
Column: BEH C18

Analyte	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFHxA	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFHpA	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFHxS	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFOA	1.94	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFOS	120	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFNA	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFDA	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
MeFOSAA	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFUnA	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
EtFOSAA	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFDoA	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFTrDA	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
PFTeDA	ND	1.75		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	127	60 - 150		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
13C2-PFHxA	IS	97.3	70 - 130		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
13C4-PFHpA	IS	93.6	60 - 150		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
18O2-PFHxS	IS	96.5	60 - 130		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
13C2-PFOA	IS	80.6	60 - 130		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
13C8-PFOS	IS	87.2	60 - 130		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
13C5-PFNA	IS	90.7	50 - 130		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
13C2-PFDA	IS	74.8	60 - 130		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
d3-MeFOSAA	IS	87.7	50 - 150		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
13C2-PFUnA	IS	81.8	60 - 130		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
d5-EtFOSAA	IS	84.7	50 - 150		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
13C2-PFDoA	IS	82.3	30 - 130		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1
13C2-PFTeDA	IS	63.8	20 - 150		B7J0160	24-Oct-17	1.20 g	27-Oct-17 01:30	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: B-M-2 (9.5-10)

VAL - PFAS

Client Data

Name: Apex Companies, LLC
Project: PDX Fire Training Facility
Matrix: Soil
Date Collected: 03-Oct-17 10:05

Laboratory Data

Lab Sample: 1701412-05
Date Received: 05-Oct-17 09:53
% Solids: 41.5
Column: BEH C18

Analyte	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	5.16	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFHxA	16.1	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFHpA	4.34	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFHxS	22.2	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFOA	6.49	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFOS	ND	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFNA	ND	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFDA	ND	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
MeFOSAA	ND	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFUnA	ND	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
EtFOSAA	ND	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFDoA	ND	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFTrDA	ND	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
PFTeDA	ND	3.88		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	105	60 - 150		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
13C2-PFHxA	IS	89.0	70 - 130		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
13C4-PFHpA	IS	90.7	60 - 150		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
18O2-PFHxS	IS	97.4	60 - 130		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
13C2-PFOA	IS	75.4	60 - 130		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
13C8-PFOS	IS	83.6	60 - 130		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
13C5-PFNA	IS	81.5	50 - 130		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
13C2-PFDA	IS	75.2	60 - 130		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
d3-MeFOSAA	IS	88.1	50 - 150		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
13C2-PFUnA	IS	87.0	60 - 130		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
d5-EtFOSAA	IS	83.1	50 - 150		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
13C2-PFDoA	IS	96.3	30 - 130		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1
13C2-PFTeDA	IS	98.3	20 - 150		B7J0160	24-Oct-17	1.24 g	27-Oct-17 01:41	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The associated compound concentration exceeded the calibration range of the instrument.**
H	**Recovery and/or RPD was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*****	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701412 Temp: 0.9 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: **PDX Fire Training Facility** PO#: **1264-03** Sampler: **Kyle Kline** (name)

TAT (check one): Standard: [X] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashleigh Fines	**Apex Companies**	**3015 SW 1st Ave**	**Portland**	**OR**	**503-924-4704**	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kyle Kline	10/4/17	1200	Marissa Sparks	10/5/17	1006
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

Method of Shipment:

ATTN: Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537: PFOA/PFOS	UCMR3 PFAS List 6	537 List: 14	Full List of 26	Other: Please List Below	EPA Method 537(DW only): PFOA/PFOS	UCMR3 PFAS List 6	PFAS List: 14	Comments
MW-GW-1 (40)	**10/3/17**	**1250**		**2**	**P**	**GW**			**X**						**Potential high concentrations**
MW-GW-2 (61.5)	**10/3/17**	**1535**		**2**	**P**	**GW**			**X**						**Potential high concentrations**
B-M-1 (1.5-2)	**10/2/17**	**1222**		**1**	**P**	**SO**			**X**						**Hold -Potential high concentrations**
B-M-2 (9.5-10)	**10/3/17**	**1005**		**1**	**P**	**SO**			**X**						**Hold -Potential high concentrations**
Equipment Blank	**10/3/17**	**1550**		**2**	**P**	**GW**			**X**						

Special Instructions/Comments:

SEND DOCUMENTATION AND RESULTS TO:

Name: **Ashleigh Fines and Kelsi Evans**
Company: **see above**
Address:
City: State: Zip:
Phone: Fax:
Email: **afines@apexcos.com; kelsi.evans@apexcos.com**

Container Types: P= HDPE, PJ= HDPE Jar, O = Other:

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701412 **TAT** Std

Samples Arrival:	**Date/Time** 10/5/17 0953	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** N/A
Logged In:	**Date/Time** 10/06/17 0929	**Initials:** MSB	**Location:** WR-2 **Shelf/Rack:** E2

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		(Blue Ice)		Dry Ice		None

Temp °C: 0.8	(uncorrected)	**Time:** 1006	**Thermometer ID:** IR-1
Temp °C: 0.9	(corrected)	**Probe used:** Yes☐ No☑	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 7704 1887 8729	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Preservation Documented:	$Na_2S_2O_3$	Trizma	(None)	Yes	No	NA
Shipping Container	Vista	(Client)	Retain	(Return)	Dispose	

Comments: Sample containers recived with sample label on Bag; not a label on the container(s).

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-32175-1
Client Project/Site: PFAS TOP Assay

For:
Vista Analytical Laboratory, Inc.
1104 WINDFIELD WAY
El Dorado Hills, California 95762

Attn: Karen Volpendesa

Authorized for release by:
10/30/2017 8:41:15 AM

David Alltucker, Project Manager I
(916)374-4383
david.alltucker@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 320-32175-1

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative
320-32175-1

Receipt
The sample was received on 10/5/2017 10:10 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6º C.

LCMS
Method(s) 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This compound is fortified into all sample fractions prior to any processing. The recovery of this compound should be close to 100% in Pre-Treatment fractions, as this fraction is not oxidized, and 0% in Post-Treatment fractions, indicating complete oxidation of the sample.

Method(s) 537 (modified): The compound M2-4:2FTS is converted to PFBA during the oxidation step of the TOP assay. The Post-Treatment method blank's PFBA result indicates roughly how much of any field sample's Post-Treatment PFBA result is contributed by the oxidation process.

Method(s) 537 (modified): The oxidation process converts precursor PFAS compounds to end product PFCA (Per or Poly-fluorinated carboxylic acids). As the LCS/LCSD associated to this data set was fortified with precursor PFAS compounds their conversion to PFCA is demonstrated by zero recovery of these compounds (6:2 FTS, 8:2 FTS, FOSA, MeFOSAA and EtFOSAA) yet enhanced recoveries of PFCA relative to the pre-oxidation LCS/LCSD results.

Method(s) 537 (modified): Due to the sporadic recovery performance for the labeled analyte 13C8-FOSA, we are temporarily increasing the reporting limit (RL) for the target analyte FOSA in order to provide better confidence in its reported value. The RL for FOSA has been increased so the same concentration as that fortified into the laboratory control sample (LCS). At this concentration, the LCS demonstrates acceptable FOSA recovery regardless of the recovery of it labeled analog, 13C8-FOSA, which is used to quantitate FOSA. Thus, indicating sufficient analytical performance to support this RL increase. Techniques to improve the recovery performance of 13C8-FOSA are currently underway.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit for 13C8 FOSA: MW-4 (320-32175-1) and (MB 320-188740/1-A). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method(s) 537 (modified): The method blank for preparation batch 320-188740 and analytical batch 320-191243 contained Perfluorobutanoic acid (PFBA) above the reporting limit. This target analyte concentration was greater than 10x the blank concentration; therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) TOPS Post Prep: Due to expected high levels sample MW-4 (320-32175-1) was measured out at 1.00 mL and diluted to 100.00 mL with reagent water for extraction.
Batch; 188740
TOPS_Post_Prep
Aqueous

Method(s) TOPS Pre - Prep: Due to expected high levels sample MW-4 (320-32175-1) was measured out at 1.00 mL and diluted to 100.00 mL with reagent water for extraction.
Batch: 188738
TOPS_Pre_Prep
Aqueous

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 320-32175-1 (Continued)

Laboratory: TestAmerica Sacramento (Continued)

Detection Summary

Client: Vista Analytical Laboratory, Inc.
Project/Site: PFAS TOP Assay

TestAmerica Job ID: 320-32175-1

Client Sample ID: MW-4

Lab Sample ID: 320-32175-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9200		500	500	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPeA)	28000		500	500	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	36000		500	500	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	9500		500	500	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	10000		500	500	ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	5600		500	500	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	24000		500	500	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanesulfonic Acid (PFHpS)	1400		500	500	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	92000		500	500	ng/L	1		537 (modified)	Pre-Treatment
6:2FTS - DL	160000		25000	25000	ng/L	5		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	35000	* B	500	500	ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPeA)	59000	*	500	500	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	64000	*	500	500	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	13000	*	500	500	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	10000	*	500	500	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	6000		500	500	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	24000		500	500	ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanesulfonic Acid (PFHpS)	1300		500	500	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	86000		500	500	ng/L	1		537 (modified)	Post-Treatment
PFBA	26000				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	31000				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	28000				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	3800				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	70				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	88000				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	93000				ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	180000				ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-4
Date Collected: 09/26/17 13:00
Date Received: 10/05/17 10:10

Lab Sample ID: 320-32175-1
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9200**		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluoropentanoic acid (PFPeA)	**28000**		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorohexanoic acid (PFHxA)	**36000**		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluoroheptanoic acid (PFHpA)	**9500**		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorooctanoic acid (PFOA)	**10000**		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorononanoic acid (PFNA)	ND		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorodecanoic acid (PFDA)	ND		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluoroundecanoic acid (PFUnA)	ND		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorododecanoic acid (PFDoA)	ND		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorotridecanoic Acid (PFTriA)	ND		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorobutanesulfonic acid (PFBS)	**5600**		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorohexanesulfonic acid (PFHxS)	**24000**		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1400**		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorooctanesulfonic acid (PFOS)	**92000**		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		500	500	ng/L		10/10/17 15:15	10/26/17 07:31	1
Perfluorooctane Sulfonamide (FOSA)	ND		4000	4000	ng/L		10/10/17 15:15	10/26/17 07:31	1
8:2FTS	ND		5000	5000	ng/L		10/10/17 15:15	10/26/17 07:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*53*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C4 PFBA	*122*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C2 PFHxA	*97*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C4 PFOA	*106*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C5 PFNA	*100*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C2 PFDA	*111*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C2 PFUnA	*111*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C2 PFDoA	*112*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
18O2 PFHxS	*97*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C4 PFOS	*95*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C4-PFHpA	*118*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C5 PFPeA	*106*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
M2-8:2FTS	*125*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
M2-4:2FTS	*45*		*0 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C3-PFBS	*103*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*
13C2-PFTeDA	*120*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:31*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2FTS	**160000**		25000	25000	ng/L		10/10/17 15:15	10/26/17 16:50	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2FTS	*126*		*25 - 150*	*10/10/17 15:15*	*10/26/17 16:50*	*5*

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**35000**	*** B**	500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluoropentanoic acid (PFPeA)	**59000**	*****	500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1

Client Sample ID: MW-4
Date Collected: 09/26/17 13:00
Date Received: 10/05/17 10:10

Lab Sample ID: 320-32175-1
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**64000**	*	500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluoroheptanoic acid (PFHpA)	**13000**	*	500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorooctanoic acid (PFOA)	**10000**	*	500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorononanoic acid (PFNA)	ND		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorodecanoic acid (PFDA)	ND		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluoroundecanoic acid (PFUnA)	ND		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorododecanoic acid (PFDoA)	ND		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorotridecanoic Acid (PFTriA)	ND		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorobutanesulfonic acid (PFBS)	**6000**		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorohexanesulfonic acid (PFHxS)	**24000**		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1300**		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorooctanesulfonic acid (PFOS)	**86000**		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		500	500	ng/L		10/10/17 15:32	10/26/17 08:12	1
Perfluorooctane Sulfonamide (FOSA)	ND	*	4000	4000	ng/L		10/10/17 15:32	10/26/17 08:12	1
6:2FTS	ND	*	5000	5000	ng/L		10/10/17 15:32	10/26/17 08:12	1
8:2FTS	ND	*	5000	5000	ng/L		10/10/17 15:32	10/26/17 08:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*10*	*	*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C4 PFBA	*67*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C2 PFHxA	*71*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C4 PFOA	*64*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C5 PFNA	*52*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C2 PFDA	*59*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C2 PFUnA	*67*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C2 PFDoA	*73*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
18O2 PFHxS	*101*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C4 PFOS	*99*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C4-PFHpA	*85*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C5 PFPeA	*76*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
M2-6:2FTS	*49*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
M2-8:2FTS	*70*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
M2-4:2FTS	*0*		*0 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C3-PFBS	*89*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*
13C2-PFTeDA	*94*		*25 - 150*	*10/10/17 15:32*	*10/26/17 08:12*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	**26000**				ng/L			10/29/17 13:06	1
PFPA	**31000**				ng/L			10/29/17 13:06	1
PFHxA	**28000**				ng/L			10/29/17 13:06	1
PFHpA	**3800**				ng/L			10/29/17 13:06	1
PFOA	**70**				ng/L			10/29/17 13:06	1
PFNA	**0.00**				ng/L			10/29/17 13:06	1
Total PFCA	**88000**				ng/L			10/29/17 13:06	1

Client: Vista Analytical Laboratory, Inc.
Project/Site: PFAS TOP Assay

TestAmerica Job ID: 320-32175-1

Client Sample ID: MW-4
Date Collected: 09/26/17 13:00
Date Received: 10/05/17 10:10

Lab Sample ID: 320-32175-1
Matrix: Water

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	93000				ng/L			10/29/17 13:04	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	180000				ng/L			10/29/17 13:04	1

Total Oxidation Precursors

Client: Vista Analytical Laboratory, Inc.
Project/Site: PFAS TOP Assay

TestAmerica Job ID: 320-32175-1

Client Sample ID: MW-4

Lab Sample ID: 320-32175-1

Matrix: Water

Analyte	Pre - Treatment Method: 537 (modified) Result	Qualifier	Unit	Post - Treatment Method: 537 (modified) Result	Qualifier	Unit	Difference [1] Result	Unit
Perfluorobutanoic acid (PFBA)	9200		ng/L	35000		ng/L	26000	ng/L
Perfluoropentanoic acid (PFPeA)	28000		ng/L	59000		ng/L	31000	ng/L
Perfluorohexanoic acid (PFHxA)	36000		ng/L	64000		ng/L	28000	ng/L
Perfluoroheptanoic acid (PFHpA)	9500		ng/L	13000		ng/L	3800	ng/L
Perfluorooctanoic acid (PFOA)	10000		ng/L	10000		ng/L	70	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total PFCA	93000		ng/L	180000		ng/L	88000	ng/L

[1] Difference = Post-Treatment - Pre-Treament

Isotope Dilution Summary

Client: Vista Analytical Laboratory, Inc.
Project/Site: PFAS TOP Assay

TestAmerica Job ID: 320-32175-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Pre-Treatment**

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	3C8 FOSA (25-150)	3C4 PFBA (25-150)	3C2 PFHx (25-150)	3C4 PFOA (25-150)	3C5 PFNA (25-150)	3C2 PFDA (25-150)	3C2 PFUn (25-150)	3C2 PFDo (25-150)
320-32175-1	MW-4	53	122	97	106	100	111	111	112
320-32175-1 - DL	MW-4								
LCS 320-188738/2-A	Lab Control Sample	44	118	102	111	115	122	114	110
LCSD 320-188738/3-A	Lab Control Sample Dup	43	113	95	109	111	111	111	100
MB 320-188738/1-A	Method Blank	36	106	91	102	106	107	106	98

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	3O2 PFHxS (25-150)	3C4 PFOS (25-150)	3C4-PFHpA (25-150)	3C5 PFPeA (25-150)	M2-6:2FTS (25-150)	M2-8:2FTS (25-150)	M2-4:2FTS (0-150)	3C3-PFBS (25-150)
320-32175-1	MW-4	97	95	118	106		125	45	103
320-32175-1 - DL	MW-4					126			
LCS 320-188738/2-A	Lab Control Sample	102	102	122	103	95	120	40	107
LCSD 320-188738/3-A	Lab Control Sample Dup	97	97	115	102	97	119	42	100
MB 320-188738/1-A	Method Blank	92	92	112	94	85	106	34	95

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	13C2-PFTeDA (25-150)
320-32175-1	MW-4	120
320-32175-1 - DL	MW-4	
LCS 320-188738/2-A	Lab Control Sample	119
LCSD 320-188738/3-A	Lab Control Sample Dup	121
MB 320-188738/1-A	Method Blank	121

Surrogate Legend

13C8 FOSA = 13C8 FOSA
13C4 PFBA = 13C4 PFBA
13C2 PFHxA = 13C2 PFHxA
13C4 PFOA = 13C4 PFOA
13C5 PFNA = 13C5 PFNA
13C2 PFDA = 13C2 PFDA
13C2 PFUnA = 13C2 PFUnA
13C2 PFDoA = 13C2 PFDoA
18O2 PFHxS = 18O2 PFHxS
13C4 PFOS = 13C4 PFOS
13C4-PFHpA = 13C4-PFHpA
13C5 PFPeA = 13C5 PFPeA
M2-6:2FTS = M2-6:2FTS
M2-8:2FTS = M2-8:2FTS
M2-4:2FTS = M2-4:2FTS
13C3-PFBS = 13C3-PFBS
13C2-PFTeDA = 13C2-PFTeDA

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Post-Treatment**

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	3C8 FOSA (25-150)	3C4 PFBA (25-150)	3C2 PFHx (25-150)	3C4 PFOA (25-150)	3C5 PFNA (25-150)	3C2 PFDA (25-150)	3C2 PFUn (25-150)	3C2 PFDo (25-150)
320-32175-1	MW-4	10 *	67	71	64	52	59	67	73
LCS 320-188740/2-A	Lab Control Sample	11 *	62	62	55	52	55	63	70

Isotope Dilution Summary

Client: Vista Analytical Laboratory, Inc.
Project/Site: PFAS TOP Assay

TestAmerica Job ID: 320-32175-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Matrix: Water **Prep Type: Post-Treatment**

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	3C8 FOSA (25-150)	3C4 PFBA (25-150)	3C2 PFHx (25-150)	3C4 PFOA (25-150)	3C5 PFNA (25-150)	3C2 PFDA (25-150)	3C2 PFUn (25-150)	3C2 PFDo (25-150)
LCSD 320-188740/3-A	Lab Control Sample Dup	8 *	72	73	65	60	60	64	71
MB 320-188740/1-A	Method Blank	22 *	65	76	64	58	59	70	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	3O2 PFHx (25-150)	3C4 PFOS (25-150)	3C4-PFHp (25-150)	3C5 PFPe (25-150)	M2-6:2FTS (25-150)	M2-8:2FTS (25-150)	M2-4:2FTS (0-150)	3C3-PFBS (25-150)
320-32175-1	MW-4	101	99	85	76	49	70	0	89
LCS 320-188740/2-A	Lab Control Sample	99	92	78	65	66	98	0	81
LCSD 320-188740/3-A	Lab Control Sample Dup	100	95	85	80	47	68	0	82
MB 320-188740/1-A	Method Blank	102	100	91	77	57	85	0	89

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	C2-PFTeDA (25-150)
320-32175-1	MW-4	94
LCS 320-188740/2-A	Lab Control Sample	100
LCSD 320-188740/3-A	Lab Control Sample Dup	87
MB 320-188740/1-A	Method Blank	110

Surrogate Legend

13C8 FOSA = 13C8 FOSA
13C4 PFBA = 13C4 PFBA
13C2 PFHxA = 13C2 PFHxA
13C4 PFOA = 13C4 PFOA
13C5 PFNA = 13C5 PFNA
13C2 PFDA = 13C2 PFDA
13C2 PFUnA = 13C2 PFUnA
13C2 PFDoA = 13C2 PFDoA
18O2 PFHxS = 18O2 PFHxS
13C4 PFOS = 13C4 PFOS
13C4-PFHpA = 13C4-PFHpA
13C5 PFPeA = 13C5 PFPeA
M2-6:2FTS = M2-6:2FTS
M2-8:2FTS = M2-8:2FTS
M2-4:2FTS = M2-4:2FTS
13C3-PFBS = 13C3-PFBS
13C2-PFTeDA = 13C2-PFTeDA

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-188738/1-A
Matrix: Water
Analysis Batch: 191243

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 188738

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluoropentanoic acid (PFPeA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorooctanoic acid (PFOA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorononanoic acid (PFNA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorodecanoic acid (PFDA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	5.0	ng/L		10/10/17 15:15	10/26/17 07:10	1
Perfluorooctane Sulfonamide (FOSA)	ND		40	40	ng/L		10/10/17 15:15	10/26/17 07:10	1
6:2FTS	ND		50	50	ng/L		10/10/17 15:15	10/26/17 07:10	1
8:2FTS	ND		50	50	ng/L		10/10/17 15:15	10/26/17 07:10	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*36*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C4 PFBA	*106*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C2 PFHxA	*91*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C4 PFOA	*102*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C5 PFNA	*106*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C2 PFDA	*107*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C2 PFUnA	*106*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C2 PFDoA	*98*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
18O2 PFHxS	*92*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C4 PFOS	*92*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C4-PFHpA	*112*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C5 PFPeA	*94*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
M2-6:2FTS	*85*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
M2-8:2FTS	*106*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
M2-4:2FTS	*34*		*0 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C3-PFBS	*95*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*
13C2-PFTeDA	*121*		*25 - 150*	*10/10/17 15:15*	*10/26/17 07:10*	*1*

Lab Sample ID: LCS 320-188738/2-A
Matrix: Water
Analysis Batch: 191243

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 188738

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	100	113		ng/L		113	89 - 128
Perfluoropentanoic acid (PFPeA)	100	99.3		ng/L		99	66 - 136
Perfluorohexanoic acid (PFHxA)	100	104		ng/L		104	86 - 126

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-188738/2-A
Matrix: Water
Analysis Batch: 191243

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 188738

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroheptanoic acid (PFHpA)	100	106		ng/L		106	89 - 127
Perfluorooctanoic acid (PFOA)	100	104		ng/L		104	80 - 120
Perfluorononanoic acid (PFNA)	100	103		ng/L		103	77 - 137
Perfluorodecanoic acid (PFDA)	100	104		ng/L		104	84 - 123
Perfluoroundecanoic acid (PFUnA)	100	96.8		ng/L		97	73 - 122
Perfluorododecanoic acid (PFDoA)	100	105		ng/L		105	82 - 122
Perfluorotridecanoic Acid (PFTriA)	100	108		ng/L		108	56 - 163
Perfluorotetradecanoic acid (PFTeA)	100	104		ng/L		104	66 - 120
Perfluorobutanesulfonic acid (PFBS)	88.4	94.1		ng/L		106	88 - 130
Perfluorohexanesulfonic acid (PFHxS)	91.0	96.5		ng/L		106	87 - 126
Perfluoroheptanesulfonic Acid (PFHpS)	95.2	106		ng/L		112	92 - 135
Perfluorooctanesulfonic acid (PFOS)	92.8	92.2		ng/L		99	83 - 126
Perfluorodecanesulfonic acid (PFDS)	96.4	107		ng/L		111	80 - 129
Perfluorooctane Sulfonamide (FOSA)	100	94.3		ng/L		94	91 - 133
6:2FTS	94.8	101		ng/L		107	90 - 135
8:2FTS	95.8	103		ng/L		107	88 - 132

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*44*		*25 - 150*
13C4 PFBA	*118*		*25 - 150*
13C2 PFHxA	*102*		*25 - 150*
13C4 PFOA	*111*		*25 - 150*
13C5 PFNA	*115*		*25 - 150*
13C2 PFDA	*122*		*25 - 150*
13C2 PFUnA	*114*		*25 - 150*
13C2 PFDoA	*110*		*25 - 150*
18O2 PFHxS	*102*		*25 - 150*
13C4 PFOS	*102*		*25 - 150*
13C4-PFHpA	*122*		*25 - 150*
13C5 PFPeA	*103*		*25 - 150*
M2-6:2FTS	*95*		*25 - 150*
M2-8:2FTS	*120*		*25 - 150*
M2-4:2FTS	*40*		*0 - 150*
13C3-PFBS	*107*		*25 - 150*
13C2-PFTeDA	*119*		*25 - 150*

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-188738/3-A
Matrix: Water
Analysis Batch: 191243

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 188738

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			100	114		ng/L		114	89 - 128	1	30
Perfluoropentanoic acid (PFPeA)			100	98.4		ng/L		98	66 - 136	1	30
Perfluorohexanoic acid (PFHxA)			100	109		ng/L		109	86 - 126	5	30
Perfluoroheptanoic acid (PFHpA)			100	109		ng/L		109	89 - 127	4	30
Perfluorooctanoic acid (PFOA)			100	98.9		ng/L		99	80 - 120	5	30
Perfluorononanoic acid (PFNA)			100	102		ng/L		102	77 - 137	1	30
Perfluorodecanoic acid (PFDA)			100	106		ng/L		106	84 - 123	2	30
Perfluoroundecanoic acid (PFUnA)			100	99.6		ng/L		100	73 - 122	3	30
Perfluorododecanoic acid (PFDoA)			100	106		ng/L		106	82 - 122	1	30
Perfluorotridecanoic Acid (PFTriA)			100	116		ng/L		116	56 - 163	7	30
Perfluorotetradecanoic acid (PFTeA)			100	105		ng/L		105	66 - 120	1	30
Perfluorobutanesulfonic acid (PFBS)			88.4	96.1		ng/L		109	88 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)			91.0	96.3		ng/L		106	87 - 126	0	30
Perfluoroheptanesulfonic Acid (PFHpS)			95.2	109		ng/L		114	92 - 135	2	30
Perfluorooctanesulfonic acid (PFOS)			92.8	92.1		ng/L		99	83 - 126	0	30
Perfluorodecanesulfonic acid (PFDS)			96.4	103		ng/L		107	80 - 129	4	30
Perfluorooctane Sulfonamide (FOSA)			100	95.4		ng/L		95	91 - 133	1	30
6:2FTS			94.8	96.2		ng/L		101	90 - 135	5	30
8:2FTS			95.8	103		ng/L		107	88 - 132	0	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*43*		*25 - 150*
13C4 PFBA	*113*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C4 PFOA	*109*		*25 - 150*
13C5 PFNA	*111*		*25 - 150*
13C2 PFDA	*111*		*25 - 150*
13C2 PFUnA	*111*		*25 - 150*
13C2 PFDoA	*100*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
13C4-PFHpA	*115*		*25 - 150*
13C5 PFPeA	*102*		*25 - 150*
M2-6:2FTS	*97*		*25 - 150*
M2-8:2FTS	*119*		*25 - 150*
M2-4:2FTS	*42*		*0 - 150*
13C3-PFBS	*100*		*25 - 150*
13C2-PFTeDA	*121*		*25 - 150*

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: MB 320-188740/1-A
Matrix: Water
Analysis Batch: 191243

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 188740

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.04		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluoropentanoic acid (PFPeA)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorooctanoic acid (PFOA)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorononanoic acid (PFNA)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorodecanoic acid (PFDA)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	5.0	ng/L		10/10/17 15:32	10/26/17 07:52	1
Perfluorooctane Sulfonamide (FOSA)	ND		40	40	ng/L		10/10/17 15:32	10/26/17 07:52	1
6:2FTS	ND		50	50	ng/L		10/10/17 15:32	10/26/17 07:52	1
8:2FTS	ND		50	50	ng/L		10/10/17 15:32	10/26/17 07:52	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*22*	*	*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C4 PFBA	*65*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C2 PFHxA	*76*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C4 PFOA	*64*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C5 PFNA	*58*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C2 PFDA	*59*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C2 PFUnA	*70*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C2 PFDoA	*83*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
18O2 PFHxS	*102*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C4 PFOS	*100*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C4-PFHpA	*91*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C5 PFPeA	*77*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
M2-6:2FTS	*57*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
M2-8:2FTS	*85*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
M2-4:2FTS	*0*		*0 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C3-PFBS	*89*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*
13C2-PFTeDA	*110*		*25 - 150*	*10/10/17 15:32*	*10/26/17 07:52*	*1*

Lab Sample ID: LCS 320-188740/2-A
Matrix: Water
Analysis Batch: 191243

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 188740

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	100	128		ng/L		128	85 - 129
Perfluoropentanoic acid (PFPeA)	100	120	*	ng/L		120	84 - 111
Perfluorohexanoic acid (PFHxA)	100	119	*	ng/L		119	85 - 112

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-188740/2-A
Matrix: Water
Analysis Batch: 191243

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 188740

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroheptanoic acid (PFHpA)	100	152	*	ng/L		152	87 - 112
Perfluorooctanoic acid (PFOA)	100	374	*	ng/L		374	85 - 111
Perfluorononanoic acid (PFNA)	100	97.4		ng/L		97	83 - 116
Perfluorodecanoic acid (PFDA)	100	99.3		ng/L		99	82 - 116
Perfluoroundecanoic acid (PFUnA)	100	94.4		ng/L		94	38 - 155
Perfluorododecanoic acid (PFDoA)	100	102		ng/L		102	84 - 116
Perfluorotridecanoic Acid (PFTriA)	100	125		ng/L		125	82 - 129
Perfluorotetradecanoic acid (PFTeA)	100	104		ng/L		104	75 - 154
Perfluorobutanesulfonic acid (PFBS)	88.4	96.7		ng/L		109	85 - 129
Perfluorohexanesulfonic acid (PFHxS)	91.0	92.7		ng/L		102	81 - 114
Perfluoroheptanesulfonic Acid (PFHpS)	95.2	106		ng/L		111	78 - 144
Perfluorooctanesulfonic acid (PFOS)	92.8	90.8		ng/L		98	75 - 122
Perfluorodecanesulfonic acid (PFDS)	96.4	96.2		ng/L		100	77 - 121
Perfluorooctane Sulfonamide (FOSA)	100	ND	*	ng/L		0	78 - 114
6:2FTS	94.8	ND	*	ng/L		0	72 - 140
8:2FTS	95.8	ND	*	ng/L		0	66 - 142

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*11*	*	*25 - 150*
13C4 PFBA	*62*		*25 - 150*
13C2 PFHxA	*62*		*25 - 150*
13C4 PFOA	*55*		*25 - 150*
13C5 PFNA	*52*		*25 - 150*
13C2 PFDA	*55*		*25 - 150*
13C2 PFUnA	*63*		*25 - 150*
13C2 PFDoA	*70*		*25 - 150*
18O2 PFHxS	*99*		*25 - 150*
13C4 PFOS	*92*		*25 - 150*
13C4-PFHpA	*78*		*25 - 150*
13C5 PFPeA	*65*		*25 - 150*
M2-6:2FTS	*66*		*25 - 150*
M2-8:2FTS	*98*		*25 - 150*
M2-4:2FTS	*0*		*0 - 150*
13C3-PFBS	*81*		*25 - 150*
13C2-PFTeDA	*100*		*25 - 150*

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-188740/3-A
Matrix: Water
Analysis Batch: 191243

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 188740

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			100	135	*	ng/L		135	85 - 129	6	30
Perfluoropentanoic acid (PFPeA)			100	120	*	ng/L		120	84 - 111	0	30
Perfluorohexanoic acid (PFHxA)			100	123	*	ng/L		123	85 - 112	3	30
Perfluoroheptanoic acid (PFHpA)			100	152	*	ng/L		152	87 - 112	0	30
Perfluorooctanoic acid (PFOA)			100	348	*	ng/L		348	85 - 111	7	30
Perfluorononanoic acid (PFNA)			100	101		ng/L		101	83 - 116	4	30
Perfluorodecanoic acid (PFDA)			100	99.9		ng/L		100	82 - 116	1	30
Perfluoroundecanoic acid (PFUnA)			100	95.5		ng/L		95	38 - 155	1	30
Perfluorododecanoic acid (PFDoA)			100	100		ng/L		100	84 - 116	1	30
Perfluorotridecanoic Acid (PFTriA)			100	115		ng/L		115	82 - 129	9	30
Perfluorotetradecanoic acid (PFTeA)			100	104		ng/L		104	75 - 154	0	30
Perfluorobutanesulfonic acid (PFBS)			88.4	97.7		ng/L		111	85 - 129	1	30
Perfluorohexanesulfonic acid (PFHxS)			91.0	94.6		ng/L		104	81 - 114	2	30
Perfluoroheptanesulfonic Acid (PFHpS)			95.2	107		ng/L		112	78 - 144	1	30
Perfluorooctanesulfonic acid (PFOS)			92.8	91.6		ng/L		99	75 - 122	1	30
Perfluorodecanesulfonic acid (PFDS)			96.4	100		ng/L		104	77 - 121	4	30
Perfluorooctane Sulfonamide (FOSA)			100	ND	*	ng/L		0	78 - 114	NC	30
6:2FTS			94.8	ND	*	ng/L		0	72 - 140	NC	30
8:2FTS			95.8	ND	*	ng/L		0	66 - 142	NC	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*8*	*	*25 - 150*
13C4 PFBA	*72*		*25 - 150*
13C2 PFHxA	*73*		*25 - 150*
13C4 PFOA	*65*		*25 - 150*
13C5 PFNA	*60*		*25 - 150*
13C2 PFDA	*60*		*25 - 150*
13C2 PFUnA	*64*		*25 - 150*
13C2 PFDoA	*71*		*25 - 150*
18O2 PFHxS	*100*		*25 - 150*
13C4 PFOS	*95*		*25 - 150*
13C4-PFHpA	*85*		*25 - 150*
13C5 PFPeA	*80*		*25 - 150*
M2-6:2FTS	*47*		*25 - 150*
M2-8:2FTS	*68*		*25 - 150*
M2-4:2FTS	*0*		*0 - 150*
13C3-PFBS	*82*		*25 - 150*
13C2-PFTeDA	*87*		*25 - 150*

QC Association Summary

Client: Vista Analytical Laboratory, Inc.
Project/Site: PFAS TOP Assay

TestAmerica Job ID: 320-32175-1

LCMS

Prep Batch: 188738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32175-1 - DL	MW-4	Pre-Treatment	Water	TOPS Pre - Prep	
320-32175-1	MW-4	Pre-Treatment	Water	TOPS Pre - Prep	
MB 320-188738/1-A	Method Blank	Pre-Treatment	Water	TOPS Pre - Prep	
LCS 320-188738/2-A	Lab Control Sample	Pre-Treatment	Water	TOPS Pre - Prep	
LCSD 320-188738/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOPS Pre - Prep	

Prep Batch: 188740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32175-1	MW-4	Post-Treatment	Water	TOPS Post Prep	
MB 320-188740/1-A	Method Blank	Post-Treatment	Water	TOPS Post Prep	
LCS 320-188740/2-A	Lab Control Sample	Post-Treatment	Water	TOPS Post Prep	
LCSD 320-188740/3-A	Lab Control Sample Dup	Post-Treatment	Water	TOPS Post Prep	

Analysis Batch: 191243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32175-1	MW-4	Post-Treatment	Water	537 (modified)	188740
320-32175-1	MW-4	Pre-Treatment	Water	537 (modified)	188738
MB 320-188738/1-A	Method Blank	Pre-Treatment	Water	537 (modified)	188738
MB 320-188740/1-A	Method Blank	Post-Treatment	Water	537 (modified)	188740
LCS 320-188738/2-A	Lab Control Sample	Pre-Treatment	Water	537 (modified)	188738
LCS 320-188740/2-A	Lab Control Sample	Post-Treatment	Water	537 (modified)	188740
LCSD 320-188738/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 (modified)	188738
LCSD 320-188740/3-A	Lab Control Sample Dup	Post-Treatment	Water	537 (modified)	188740

Analysis Batch: 191420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32175-1 - DL	MW-4	Pre-Treatment	Water	537 (modified)	188738

Analysis Batch: 191738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32175-1	MW-4	Post-Treatment	Water	Total PFCA-Sum	
320-32175-1	MW-4	Pre-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 191739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32175-1	MW-4	Total/NA	Water	Total PFCA-Dif	

Lab Chronicle

Client: Vista Analytical Laboratory, Inc.
Project/Site: PFAS TOP Assay

TestAmerica Job ID: 320-32175-1

Client Sample ID: MW-4

Date Collected: 09/26/17 13:00
Date Received: 10/05/17 10:10

Lab Sample ID: 320-32175-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOPS Post Prep			1.00 mL	0.50 mL	188740	10/10/17 15:32	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)		1			191243	10/26/17 08:12	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep			1.00 mL	0.50 mL	188738	10/10/17 15:15	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)		1			191243	10/26/17 07:31	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep	DL		1.00 mL	0.50 mL	188738	10/10/17 15:15	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)	DL	5			191420	10/26/17 16:50	CBW	TAL SAC
Total/NA	Analysis	Total PFCA-Dif		1			191739	10/29/17 13:06	MKW	TAL SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			191738	10/29/17 13:04	MKW	TAL SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			191738	10/29/17 13:04	MKW	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Vista Analytical Laboratory, Inc. TestAmerica Job ID: 320-32175-1
Project/Site: PFAS TOP Assay

Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-18
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
Georgia	State Program	4	N/A	01-29-18
Hawaii	State Program	9	N/A	01-29-18
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-18
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-18
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-18
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	07-31-18
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-28-18 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Vista Analytical Laboratory, Inc.
Project/Site: PFAS TOP Assay

TestAmerica Job ID: 320-32175-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	TAL SAC
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Vista Analytical Laboratory, Inc.
Project/Site: PFAS TOP Assay

TestAmerica Job ID: 320-32175-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-32175-1	MW-4	Water	09/26/17 13:00	10/05/17 10:10

Vista Analytical Laboratory

Chain-of-Custody Record

Samples from:
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
916-673-1520

Samples sent to:
Test America
Attn: David Alltucker
880 Riverside Parkway
West Sacramento, CA 95605
(916) 374-4383

Sample Information

Lab Number	Sample Name	Sampled Date	Matrix	# of Container(s)	TAT	Method
1701380-01	MW-4	9/26/2017 1300	Groundwater	2 4 1320 10/4/17	28 business days	Modified EPA 537 (14 analytes plus Top Assay)

320-32175 Chain of Custody

Special Instructions: Sample contains high PFC concentrations. Apex' QL objectives are PFOS 1 ng/L and 2 ng/L for all other analytes. Please contact Vista if dilutions will be applied. Report to the RL only.

Reliquished (Printed Name/Signature/Date/Time)
Bethina Benedict 10/04/17 1352

Received (Printed Name/Signature/Date/Time)
FEDEX 10/04/17 1530

Required Data Deliverables: Level II PDF, Std. EDD, Level IV on CD

Reliquished (Printed Name/Signature/Date/Time)

Received (Printed Name/Signature/Date/Time)
10/5/17 1010 1.6°C

Login Sample Receipt Checklist

Client: Vista Analytical Laboratory, Inc.

Job Number: 320-32175-1

Login Number: 32175
List Number: 1
Creator: Turpen, Troy

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

September 21, 2017

Vista Work Order No. 1701147

Ms. Ashleigh Fines
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

Dear Ms. Fines,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on August 25, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name '2333-02'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1701147
Case Narrative

Sample Condition on Receipt:

One water sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

Modified EPA Method 537

The sample was extracted and analyzed for a selected list of 14 PFAS using Modified EPA Method 537. The results for PFHxS, PFOA and PFOS include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the method hold times. The sample was re-extracted and the extract was concentrated to a lower volume to reach a Reporting Limit of 1.05 ng/L. The re-extract was performed outside the hold time.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each preparation batch. No analytes were detected in the Method Blanks above the Reporting Limits. The OPR recoveries were within the method acceptance criteria.

The recoveries of all internal standards in the QC and field samples were within the acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701147-01	A	24-Aug-17 08:15	25-Aug-17 08:54	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: 2333-02
Matrix: Aqueous

Laboratory Data

Lab Sample: B7H0171-BLK1
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
PFHxA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
PFHpA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
PFHxS	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
PFOA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
PFNA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
PFDA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
MeFOSAA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
PFUnA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
EtFOSAA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
PFDoA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
PFTrDA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
PFTeDA	ND	1.00		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	145	60 - 150		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
13C2-PFHxA	IS	98.7	70 - 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
13C4-PFHpA	IS	89.9	60 - 150		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
18O2-PFHxS	IS	99.8	60 - 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
13C2-PFOA	IS	92.3	60 - 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
13C5-PFNA	IS	94.8	50 - 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
13C2-PFDA	IS	94.7	60 - 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
d3-MeFOSAA	IS	56.7	50 - 150		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
13C2-PFUnA	IS	76.1	60 - 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
d5-EtFOSAA	IS	62.0	50 - 150		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
13C2-PFDoA	IS	54.3	30 - 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1
13C2-PFTeDA	IS	30.7	20 - 150		B7H0171	31-Aug-17	0.250 L	15-Sep-17 18:10	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: 2333-02

Matrix: Aqueous

Laboratory Data

Lab Sample: B7H0171-BS1 Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	38.6	40.0	96.5	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
PFHxA	40.9	40.0	102	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
PFHpA	39.7	40.0	99.3	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
PFHxS	33.8	40.0	84.4	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
PFOA	42.3	40.0	106	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
PFNA	37.7	40.0	94.2	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
PFDA	44.3	40.0	111	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
MeFOSAA	34.1	40.0	85.1	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
PFUnA	44.0	40.0	110	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
EtFOSAA	40.9	40.0	102	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
PFDoA	45.4	40.0	113	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
PFTrDA	41.2	40.0	103	60-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
PFTeDA	40.3	40.0	101	70-130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	149	60- 150		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
13C2-PFHxA	IS	106	70- 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
13C4-PFHpA	IS	95.2	60- 150		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
18O2-PFHxS	IS	115	60- 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
13C2-PFOA	IS	93.3	60- 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
13C5-PFNA	IS	92.5	50- 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
13C2-PFDA	IS	77.0	60- 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
d3-MeFOSAA	IS	75.2	50- 150		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
13C2-PFUnA	IS	88.1	60- 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
d5-EtFOSAA	IS	70.8	50- 150		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
13C2-PFDoA	IS	88.6	30- 130		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1
13C2-PFTeDA	IS	85.0	20- 150		B7H0171	31-Aug-17	0.250 L	15-Sep-17 17:37	1

Sample ID: Method Blank

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: 2333-02
Matrix: Aqueous

Laboratory Data

Lab Sample: B7I0074-BLK1
Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFOS	ND	0.500		B7I0074	16-Sep-17	0.250 L	20-Sep-17 13:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOS	IS	97.0	60 - 130		B7I0074	16-Sep-17	0.250 L	20-Sep-17 13:55	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: OPR — **Modified EPA Method 537**

Client Data

Name: Apex Companies, LLC
Project: 2333-02
Matrix: Aqueous

Laboratory Data

Lab Sample: B7I0074-BS1
Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFOS	40.9	40.0	102	70-130		B7I0074	16-Sep-17	0.250 L	20-Sep-17 13:17	1
Labeled Standards	**Type**		**% Rec**	**Limits**	**Qualifiers**	**Batch**	**Extracted**	**Samp Size**	**Analyzed**	**Dilution**
13C8-PFOS	IS		103	60- 130		B7I0074	16-Sep-17	0.250 L	20-Sep-17 13:17	1

Vista Analytical Laboratory

Sample ID: A

Modified EPA Method 537

Client Data

Name: Apex Companies, LLC
Project: 2333-02
Location: QTA #2

Matrix: Water
Date Collected: 24-Aug-17 08:15

Laboratory Data

Lab Sample: 1701147-01
Date Received: 25-Aug-17 08:54

Column: BEH C18

Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
PFHxA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
PFHpA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
PFHxS	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
PFOA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
PFOS	ND	1.05		B7I0074	16-Sep-17	0.119 L	20-Sep-17 15:23	1
PFNA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
PFDA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
MeFOSAA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
PFUnA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
EtFOSAA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
PFDoA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
PFTrDA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
PFTeDA	ND	2.23		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	145	60 - 150		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
13C2-PFHxA	IS	102	70 - 130		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
13C4-PFHpA	IS	96.2	60 - 150		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
18O2-PFHxS	IS	94.5	60 - 130		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
13C2-PFOA	IS	102	60 - 130		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
13C8-PFOS	IS	95.9	60 - 130		B7I0074	16-Sep-17	0.119 L	20-Sep-17 15:23	1
13C5-PFNA	IS	79.6	50 - 130		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
13C2-PFDA	IS	74.2	60 - 130		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
d3-MeFOSAA	IS	77.2	50 - 150		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
13C2-PFUnA	IS	88.7	60 - 130		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
d5-EtFOSAA	IS	72.9	50 - 150		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
13C2-PFDoA	IS	92.3	30 - 130		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1
13C2-PFTeDA	IS	54.9	20 - 150		B7H0171	31-Aug-17	0.112 L	15-Sep-17 22:04	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit
Results reported to RL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The associated compound concentration exceeded the calibration range of the instrument.**
H	**Recovery and/or RPD was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*****	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701147 Temp: 0.1 °C
Storage ID: WR-2 Storage Secured: Yes [X] No [ ]

Project ID: 2333-02 PO#: _____ Sampler: Kyle Kline (name)

TAT (check one): Standard: [X] 21 days Rush (surcharge may apply) [ ] 14 days [ ] 7 days Specify: _____

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Ashleigh Fines	Apex Companies	3015 SW 1st Ave Portland, OR 97201				

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kyle Kline	8/24/2017	1217	Sydney Roughton	08/25/17	0856
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: _____

Method of Shipment: _____

Tracking No.: _____

Add Analysis(es) Requested

Container(s) | Mod. EPA Method 537 | EPA Method 537(DW only)

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below	PFOA/PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
A	8/24/17	815	QTA #2	2		W			X						

Special Instructions/Comments: **Limited quanity 250 ml. PFOS reporting limit of 1.0 ng/L.**

SEND DOCUMENTATION AND RESULTS TO:

Name: **Kelsi Evans, Ashleigh Fines**
Company: **Apex Companies**
Address: **3015 SW 1st Ave**
City: **Portland** State: OR Zip: 97201
Phone: **503-924-4704** Fax: _____
Email: Kelsi.Evans@apexcos.com, Afines@apexcos.com

Container Types: P= HDPE, PJ= HDPE Jar, O = Other: _____

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701147 TAT 21

Samples Arrival:	**Date/Time** 08/25/17 0854	**Initials:** SR	**Location:** WR-2 **Shelf/Rack:** N/A
Logged In:	**Date/Time** 08/25/17 1623	**Initials:** BSB	**Location:** WR-2 **Shelf/Rack:** E4

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None

Temp °C: 0.0 (uncorrected)	**Time:** 0853	**Thermometer ID:** IR-1
Temp °C: 0.1 (corrected)	**Probe used:** Yes☐ No☐	

	YES	NO	NA
Adequate Sample Volume Received? A/B	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 7701 0586 4676	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?					✓	
Preservation Documented:	$Na_2S_2O_3$	Trizma	None		Yes	(No)	NA
Shipping Container	Vista	(Client)	Retain	Return		Dispose	

Comments: Sample label placed on bag. Sample containers not labeled. Vista Sample Control designated A & B on cap of Container. BSB

Appendix E

Groundwater Sampling Logs

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-T-GW	Job Number:	1264-02
Client:	POP	Date:	8/29/17
Project:	PDX Fire Training	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	7.71	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS
Sampling Method:	LF	Tubing Type:	HDPE

Comments: —

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp ~~(°C)~~ F	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
0919	—	—	—	0.15	7.18	65.9	325	—	—	—	Cl

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-T-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	0922	Final Depth to Water:	—	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-O-GW	Job Number:	1264-02
Client:	POP	Date:	8/29/17
Project:	PDX Fire Training	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	12.75	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump				Pump Intake Depth:	MS				Comments	
Sampling Method:	LF				Tubing Type:	HDPE					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp ~~(°C)~~ F	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1051	—	—	—	0.15	7.19	68.7	418	—	—	—	SC

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-O-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista	
Sample Time:	1055	Final Depth to Water:	—	Did Well Dewater?	yes	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125ml	—	PFAS	yes (no)	—	—	—
3 x 40 ml	HCl	VOC	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-U-GW	Job Number:	1264-02
Client:	POP	Date:	8/29/17
Project:	PDX Fire Training	Sampler:	KIC
Weather:	sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	4.70	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments
Sampling Method:	LF	Tubing Type:	HDPE	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1212	—	—	—	0.15	7.35	19.2	330	—	—	—	CI

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-U-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1215	Final Depth to Water:	—	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 X 125 ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-N-GW	Job Number:	1264-02
Client:	POP	Date:	8/29/17
Project:	PDX Fire Training	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	7.60	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS
Sampling Method:	LF	Tubing Type:	HDPE

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1317	—	—	—	0.15	7.11	21.6	187	—	—	—	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-N-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1325	Final Depth to Water:	—	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-G-GW	Job Number:	1264-02
Client:	PDX Fire Training	Date:	8/29/17
Project:	POP	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	9.80	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1437	—	—	—	0.15	6.67	19.2	308	—	—	—	<1

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-G-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1438	Final Depth to Water:	—	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 125ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-F-GW	Job Number:	1264-02
Client:	POP	Date:	8/29/17
Project:	PDX Fire Training	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	6.65	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1536	—	—	—	0.15	6.86	21.3	167	—	—	—	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-F-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1538	Final Depth to Water:		Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-S-GW	Job Number:	1264-02
Client:	POP	Date:	8/28/17
Project:	PDX Fire Training	Sampler:	KK
Weather:	Sunny hot	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	7.03	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE	—	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp ~~(°C)~~ F	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1716	—	—	—	0.15	6.41	74.3	465	—	—	—	AC

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-S-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1720	Final Depth to Water:	—	Did Well Dewater?	

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125 ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-R-GW	Job Number:	1264-02
Client:	POP	Date:	8/28/17
Project:	PDX Fire Training	Sampler:	KK
Weather:	Sunny hot	Time In/Out:	—

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	7.00	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE	—	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp ~~(°C)~~ F	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1543	—	—	—	0.15	6.25	76.1	168	—	—	—	CL

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-R-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1545	Final Depth to Water:	—	Did Well Dewater?	yes

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-Q-GW	Job Number:	1264-02
Client:	Port of Portland	Date:	8/28/17
Project:	Fire Training	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	7.03	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C) (F)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1227	—	—		0.15	6.38	71.2	406	—	—	—	SC

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-Q-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1230	Final Depth to Water:		Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125 ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-P-GW	Job Number:	1264-02
Client:	POP	Date:	8/28/17
Project:	PDX Fire Training	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	5.40	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1435	—	—	—	0.15	6.47	73.9	644	—	—	—	BC

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-P-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1437	Final Depth to Water:	—	Did Well Dewater?	NCS

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL GAGING DATA SHEET

APEX

		Job Number:	1264-02
Client:	Port of Portland	Date:	9/26/17
Project:	Fire Training Facil.	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WATER LEVEL DATA

Well I.D.	Time	Depth to Free Product (feet)	Depth to Water (feet)	Depth to Well Bottom (feet)	Product Thickness (feet)	Water Column Height (feet)	Notes/Other Remarks
MW-1	912	—	9.24				
MW-2	915	—	10.60				
MW-3	—						can't get well cover off
MW-8	918	—	9.72				
MW-14	0920	—	4.60				
MW-13	0923	—	5.49				
MW-6	0925	—	8.93				
MW-5	0929	—	11.12				
MW-9	0934	—	8.13				
MW-10A	0937	—	7.21				
MW-11	0942	8.85	8.95		0.10		Black oil
MW-7	0951	—	10.78				
MW-4	0954	—	9.52				
MW-12	0956	10.40	10.52		0.12		odor, very light brown

WELL MONITORING DATA SHEET

APEX

Well I.D.	MW-4	Job Number:	1264-02
Client:	POP	Date:	9/26/17
Project:	Fire Training Facility	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:		Water Height	—
Depth to Water:	9.50	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	P. Pump				Pump Intake Depth:		MS			Comments	
Sampling Method:	LF				Tubing Type:		HDPE				
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1249	—	—	9.55	0.20	6.07	17.8	413	2.36	-31.5	—	C
1252	—	—	9.64	0.20	6.08	17.4	404	1.21	-41.5	—	C
1255	—	—	9.78	0.20	6.12	17.4	396	1.35	-50.7	—	C
1258	—	—	9.86	0.20	6.15	17.5	391	1.21	-54.6	—	C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-4	Sampling Flow Rate	0.20	Analytical Laboratory:	Vista		
Sample Time:	1300	Final Depth to Water:	9.90	Did Well Dewater?	NO		
# Containers/Type	Preservative	Analysis/Method	Field Filtered		Filter Size	MS/MSD	Duplicate ID
4 x 125ml	—	PFASTOP Assay	yes (no)		—	—	—
			yes no				
			yes no				
			yes no				
			yes no				
			yes no				

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	MW-6	Job Number:	1264-02
Client:	POP	Date:	9/26/17
Project:	Fire Training Facility	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	— 4"	Water Height	—
Depth to Water:	— 8.93	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS
Sampling Method:	LF	Tubing Type:	HDPE

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1219	—	—	9.01	0.20	6.16	18.7	107 ~~84~~	0.64	11.3	—	C
1222	—	—	9.15	0.20	5.92	18.0	101	0.30	15.0	—	C
1225	—	—	9.26	0.20	5.89	17.9	99	0.24	19.4	—	C
1228	—	—	9.39	0.20	5.84	18.0	98	0.21	26.3	—	C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-6	Sampling Flow Rate	0.20	Analytical Laboratory:	Vista
Sample Time:	1230	Final Depth to Water:	9.50	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4 x 125 m	—	PFAS	yes (no)	—	—	MW-6 Dup
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	MW - 8	Job Number:	1264-02
Client:	POP	Date:	9/26/17
Project:	Fire Training Facility	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:		Water Height	—
Depth to Water:	9.72	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS				Comments	
Sampling Method:	LF	Tubing Type:	HDPE					

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1150	—	—	9.79	0.20	5.89	18.3	72	2.16	53.5	—	C
1153	—	—	9.85	0.20	5.92	17.4	72	0.45	-38.7	—	C
1156	—	—	9.95	0.20	5.94	17.5	72	0.24	-42.1	—	C
1159	—	—	10.08	0.20	5.98	17.4	72	0.18	-48.9	—	C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW - 8	Sampling Flow Rate	0.20	Analytical Laboratory:	Vista
Sample Time:	1207	Final Depth to Water:	10.13	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	MW-13	Job Number:	1264-02
Client:	POP	Date:	3/26/17
Project:	Fire Training Facility	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	4"	Water Height	—
Depth to Water:	5.48	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1107	—	—	5.52	0.20	5.75	18.2	88	4.41	96.5	—	C
1110	—	—	5.54	0.20	5.69	18.1	85	3.44	97.0	—	C
1113	—	—	5.55	0.20	5.67	18.3	84	3.40	98.8	—	C
1116	—	—	5.55	0.20	5.68	18.4	84	3.36	99.0	—	C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-13	Sampling Flow Rate	0.20	Analytical Laboratory:	Vista	
Sample Time:	1120	Final Depth to Water:	5.51	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	MW-14	Job Number:	1264-01
Client:	Port of Portland	Date:	9/26/17
Project:	Fire Training Facility	Sampler:	KK
Weather:		Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	4"	Water Height	—
Depth to Water:	4.56	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1043	—	—	4.65	0.20	6.03	17.4	104	1.28	111.6	—	C
1046	—	—	4.70	0.20	5.86	16.3	69	0.93	95.1	—	C
1049	—	—	4.71	0.20	5.82	16.3	68	0.96	97.3	—	C
1052	—	—	4.71	0.20	5.80	16.4	67	0.95	98.0	—	C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-14	Sampling Flow Rate	0.20	Analytical Laboratory:	Vista	
Sample Time:	1055	Final Depth to Water:	4.62	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125 ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-E-GW	Job Number:	1264-02
Client:	POP	Date:	9/27/17
Project:	Fire Training Facility	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:		Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1117	—	—	—	0.15	6.62	18.4	305	—	—	—	SC

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-E-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1120	Final Depth to Water:	—	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-A-GW	Job Number:	1264-02
Client:	POP	Date:	9/27/17
Project:	Fire Training Facility	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:		Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS
Sampling Method:	LF	Tubing Type:	HDPE

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1342	—	—	—	0.15	6.57	23.1	320	—	—	—	SC

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-A-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista/Apex
Sample Time:	1345	Final Depth to Water:	—	Did Well Dewater?	yes

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125	—	PFAS	yes (no)	—	—	—
3 x 40	HCl	VOC	yes (no)	—	—	—
3 x 1L	HCl	NWTPH GX	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-B-GW	Job Number:	1264-02
Client:	POP	Date:	9/27/17
Project:	Fire Training Facility	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:		Water Height	
Depth to Water:		Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1507	—	—	—	0.15	6.35	24.0	316	—	—	—	SC

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-B-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1510	Final Depth to Water:	—	Did Well Dewater?	

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125	—	PFAS	yes no			
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-C-GW	Job Number:	1264-02
Client:	POP	Date:	9/27/17
Project:	Fire Training Fac.	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:		Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS
Sampling Method:	LF	Tubing Type:	HDPE

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1626	—	—	—	0.15	6.37	24.5	338	—	—	—	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-C-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1630	Final Depth to Water:	—	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-D-GW	Job Number:	1264-02
Client:	POP	Date:	9/27/17
Project:	Fire Training Fac.	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:		Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump				Pump Intake Depth:	MS				Comments	
Sampling Method:	LF				Tubing Type:	HDPE					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1527	—	—	—	0.15	6.57	21.9	386	—	—	—	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-D-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista	
Sample Time:	1530	Final Depth to Water:	—	Did Well Dewater?	yes	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125 ml	—	PFAS	yes (no)	—	—	—
3 x 40 ml	HCl	VOC	yes (no)	—	—	—
1L	HCl	NWTPH-Gx	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-H-GW	Job Number:	1264-02
Client:	POP	Date:	9/28/17
Project:	Fire Training Fac.	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	11.65	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump			Pump Intake Depth:	MS					Comments	
Sampling Method:	LF			Tubing Type:	HDPE						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1346	—	—	—	0.15	6.19	25.3	1328	—	—	—	Cl

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-H-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1350	Final Depth to Water:	—	Did Well Dewater?	yes

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-L-GW	Job Number:	1264-02
Client:	POP	Date:	9/28/17
Project:	Fire Training Fac.	Sampler:	KK
Weather:	sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	8.40	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump				Pump Intake Depth:		MS			Comments	
Sampling Method:	LF				Tubing Type:		HDPE				
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1523	—	—	—	0.15	6.56	26.0	225	—	—	—	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-L-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	1528	Final Depth to Water:	—	Did Well Dewater?	

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125 ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-K-GW	Job Number:	1264-02
Client:	POP	Date:	9/28/17
Project:	Fire Training Fac.	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	9.95	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS		Comments
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
0858	—	—	—	0.15	6.89	19.4	232	—	—	—	Cl

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-K-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	0903	Final Depth to Water:	—	Did Well Dewater?	yes

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-J-GW	Job Number:	1264-02
Client:	POP	Date:	9/28/17
Project:	Fire Training Fac.	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	4.66	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	ms		Comments
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1016	—	—	—	0.15	6.43	21.3	118	—	—	—	SC

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-J-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista / Apex
Sample Time:	1025	Final Depth to Water:	—	Did Well Dewater?	yes

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2x 125	—	PFAS	yes (no)	—	—	—
3x 40 ml	HCl	VOC	yes (no)	—	—	—
2x 1 L	HCl	NW TPH GX	yes (no)	—	—	—
2x 250	HNO3	metals	(yes) no	0.45	—	—
2x 1L	~~PCB~~	PCB	yes (no)	—	—	—
1x 1L	PAH	PAH	yes (no)	—	—	—

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-I-GW	Job Number:	1264-02
Client:	POP	Date:	9/28/17
Project:	Fire Training Fac	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	5.70	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments
Sampling Method:	LF	Tubing Type:	HDPE	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1159	—	—	—	0.15	6.45	23.9	224	—	—	—	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-I-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista/Apex
Sample Time:	1205	Final Depth to Water:	—	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125 ml	—	PFAS	yes no	—	—	—
6 ~~3~~ x 40 ml	HCl	VOC	yes no	—	—	yes
2 x 250 ml	HNO3	metals	yes no	—	—	—
2 x 1L	HCl	NW TPH GX	yes no	—	—	—
2 x 1L	~~PAH~~	PAH	yes no	—	—	—
1 x 1L	~~PCB~~	PCB	yes no	—	—	—

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-W-GW	Job Number:	1264-02
Client:	POP	Date:	9/29/17
Project:	Fire Training	Sampler:	KK
Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	8.90	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—

Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
905	—	—	—	0.15	6.88	14.1	394	—	—	—	C1

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-W-GW	Sampling Flow Rate	0.15	Analytical Laboratory:	Vista
Sample Time:	910	Final Depth to Water:	—	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 125	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-V-GW	Job Number:	1264-02
Client:	POP	Date:	9/29/17
Project:	Fire Training	Sampler:	KK
Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	15.51	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1030	—	—	—	0.20	6.67	15.5	867	—	—	—	C1

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-V-GW	Sampling Flow Rate	0.20	Analytical Laboratory:	Vista	
Sample Time:	1035	Final Depth to Water:	—	Did Well Dewater?	yes	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 125M	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	B-X-GW	Job Number:	1264-02
Client:	POP	Date:	9/29/17
Project:	Fire Training Fac.	Sampler:	KK
Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	16.58	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump			Pump Intake Depth:		MS			Comments		
Sampling Method:	LF			Tubing Type:		HDPE					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1202	—	—	—	0.20	6.76	16.2	274	—	—	—	E1

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	B-X-GW	Sampling Flow Rate	0.20	Analytical Laboratory:	Vista	
Sample Time:	1206	Final Depth to Water:	—	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2x 125ml	—	PFAS	yes (no)	—	—	—
~~1206~~			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	M-GW-2 (61.5)	Job Number:	1264-02
Client:	POP	Date:	10/3/17
Project:	Fire Training Facility	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	12.62	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1524	—	—	—	0.25	6.78	15.61	946	2.18	-77.7	—	C
1527	—	—	—	|	6.80	15.60	946	2.13	-79.8	—	C
1530	—	—	—	|	6.82	15.62	946	2.09	-81.3	—	C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	M-GW-2 (61.5)	Sampling Flow Rate	0.25	Analytical Laboratory:	Vista
Sample Time:	1535	Final Depth to Water:	—	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 250 ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX

Well I.D.	M-GW-1 (40')	Job Number:	1264-02
Client:	POP	Date:	10/3/17
Project:	Fire Training Facility	Sampler:	KK
Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	18.12	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	P. Pump	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	HDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1238	—	—	—	0.30	6.83	17.48	705	1.19	-89.5	—	C l
1241	—	—	—	↓	6.85	17.46	703	1.13	-91.8	—	C l
1244	—	—	—	↓	6.85	17.44	700	1.11	-93.6	—	C l

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	M-GW-1(40')	Sampling Flow Rate	0.30	Analytical Laboratory:	Vista
Sample Time:	1250	Final Depth to Water:	—	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 250 ml	—	PFAS	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

Appendix F

PDX QTA Well Installation Log

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

WELL I.D. LABEL# L 118538
START CARD # 212550
ORIGINAL LOG #

(1) LAND OWNER
Owner Well I.D. PIA QTA
First Name _____ Last Name _____
Company Port of Portland
Address 7000 NE Airport Way
City Portland State OR Zip 97218

(2) TYPE OF WORK
[x] New Well [ ] Deepening [ ] Conversion [ ] Alteration (complete 2a & 10) [ ] Abandonment(complete 5a)

(2a) PRE-ALTERATION
	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
Casing:									

	Material	From	To	Amt	sacks/lbs
Seal:					

(3) DRILL METHOD
[ ] Rotary Air [ ] Rotary Mud [x] Cable [ ] Auger [ ] Cable Mud
[ ] Reverse Rotary [ ] Other _____

(4) PROPOSED USE
[ ] Domestic [ ] Irrigation [ ] Community
[x] Industrial/ Commericial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other _____

(5) BORE HOLE CONSTRUCTION
Special Standard [ ] (Attach copy)
Depth of Completed Well 205 ft.

BORE HOLE

Dia	From	To
20	0	49
16	49	211

SEAL

Material	From	To	Amt	sacks/lbs
Cement	0	49	92	S
		Calculated	34	
		Calculated		

How was seal placed: Method [ ] A [ ] B [x] C [ ] D [ ] E
[ ] Other _____
Backfill placed from 207 ft. to 211 ft. Material CSSI 6x9
Filter pack from 125 ft. to 207 ft. Material CSSI Size 6x9
Explosives used: [ ] Yes Type _____ Amount _____

(5a) ABANDONMENT USING UNHYDRATED BENTONITE
Proposed Amount _____ Pounds Actual Amount _____ Pounds

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
●	○	18x16*	x	3.75	150	.375	●	○	x	
●	○	16		200	207	.375	●	○	x	
○	●	12x10		125	127	.375	●	○	x	
○	●	10		127	145	.250	●	○	x	
○	●	10		200	205	.25	●	○	x	

Screen assembly

Shoe [ ] Inside [x] Outside [ ] Other Location of shoe(s) 207
Temp casing [ ] Yes Dia _____ From _____ + [ ] To _____

(7) PERFORATIONS/SCREENS
Perforations Method _____
Screens Type V-Shaped Wire Wrap Material 304 SS

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Scree		10	145	200	0.04			PS

(8) WELL TESTS: Minimum testing time is 1 hour
(●) Pump ( ) Bailer ( ) Air ( ) Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
1,500	7		24

Temperature 60 °F Lab analysis [ ] Yes By _____
Water quality concerns? [ ] Yes (describe below) TDS amount 127

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County MULTNOMA Twp 1 N N/S Range 2 E E/W WM
Sec 8 SE 1/4 of the NW 1/4 Tax Lot 300
Tax Map Number 1N 2E 8 Lot _____
Lat ° ' " or _____ DMS or DD
Long ° ' " or _____ DMS or DD
(●) Street address of well ( ) Nearest address
7000 NE Airport Way, Portland, OR 97218

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration				
Completed Well	09-20-2017			11

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 7

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
05-30-2017	7	13	AM			7
09-20-2017	56	211	1,500+			11

(11) WELL LOG
Ground Elevation _____

Material	From	To
See Attached Formation Log		
* 18"x16" includes a 1.25' bell reducer at the top of the 16" casing. A flange is welded to top of the 18" reducer.		
**10" Casing has a 1/4" steel plate bottom		

Date Started 05-24-2017 Completed 09-20-2017

(unbonded) Water Well Constructor Certification
I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
License Number 1707 Date 10-04-2017
Signed _____

(bonded) Water Well Constructor Certification
I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
License Number 649 Date 10-04-2017
Signed _____
Contact Info (optional) _____

ORIGINAL - WATER RESOURCES DEPARTMENT
THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version: 0.95

Port of Portland PIA QTA Water Well
Start Card # 212550 - Well Tag ID # L118538
Formation Log
by Schneider Water Services

FM	TO	DESCRIPTION
0	5	Sand, grey, medium
5	13	Sand, grey & red, coarse-fine w/occasional gravel, 1-1/2 minus
13	45	Clay, green & tan, soft, silty
45	55	Sand, grey & brown, medium-fine w/wood
55	56	Clay, green, medium, sandy-silty
56	67	Sand, grey & black, fine w/some clay, green, soft
67	82	Sand, grey & black, fine w/some clay, green medium & some wood
82	100	Sand, grey & black, fine
100	108	Sand, grey & black, fine w/some gravel, 1/4 minus
108	110	Sand, grey & black, fine & clay, green firm
110	115	Sand, grey & black, medium-fine
115	130	Cobbles & gravel, 4" minus & sand, grey & black, medium-fine
130	132	Cobbles & gravel & sand, grey & black, medium-fine w/some clay black, soft
132	137	Cobbles & gravel & sand, grey & black, medium-fine
137	139	Cobbles & gravel & sand, black, medium-fine
139	140	Boulder
140	146	Cobbles & gravel & sand, grey & black, coarse-fine
146	148	Cobbles & boulders w/gravel, 4"-
148	161	Cobbles & gravel & sand, black, coarse-fine
161	168	Cobbles & gravel & sand, black, coarse-fine w/some clay
168	173	Sand, black, coarse-fine & gravel, 3/8"- w/some clay, dark grey, soft
173	202	Cobbles & gravel & sand, black, coarse-fine
202	206	Boulder or basalt
206	208	Sand, black, fine-medium
208	209	Sand, black, fine-medium & clay
209	210	Gravel, 2" minus
210	211	Gravel, 2" minus & cobble w/clay, tan & grey, soft-medium, sandy, black, fine-coarse

April 5, 2018

Mr. Winston Crow
NGB/A7OR
Sheppard Hall
3501 Fetchet Avenue
Joint Base Andrews, Maryland 20762-5157

REFERENCE: **Contract W9133L-14-D-0007, Delivery Order 0011, FY17 Phase III Regional Site Inspections for Perfluorinated Compounds at Multiple Air National Guard Installations**

SUBJECT: **Final Site Inspection Work Plan for Portland ANGB**

Mr. Crow

Attached please find the above referenced document.

Should you have any questions, please contact me at 606.495.5149 or by email at vestm@leidos.com.

LEIDOS

Matthew B. Vest, PMP, PG
Project Manager

cc: Ms. Susan Klypchak – NGB-AQ-E Contracting Specialist
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Mr. Doug Wise – Portland Water Bureau Groundwater Protection Program Manager
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Ms. Linda DiJohnson – Leidos Project Controller
Leidos Project File

FINAL

WORK PLAN
FOR
FISCAL YEAR 2017 PHASE III
REGIONAL SITE INSPECTION FOR
PERFLUOROOCTANESULFONATE AND
PERFLUOROOCTANOIC ACID AT
PORTLAND AIR NATIONAL GUARD BASE
PORTLAND, OREGON

142nd Fighter Wing
Portland Air National Guard Base
Portland, Oregon

April 2018

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FINAL

WORK PLAN
FOR
FISCAL YEAR 2017 PHASE III
REGIONAL SITE INSPECTION FOR
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PORTLAND AIR NATIONAL GUARD BASE
PORTLAND, OREGON

142nd Fighter Wing
Portland Air National Guard Base
Portland, Oregon

April 2018

Contract Number W9133L-14-D-0007
Task Order Number 0011

Prepared for

Air National Guard
Restoration Branch
NGB/A4OR
3501 Fetchet Avenue
Joint Base Andrews, Maryland 20762

Prepared by

Leidos
11951 Freedom Drive
Reston, Virginia 20190

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ACRONYMS

AFFF	Aqueous Film-Forming Foam
AMSL	Above Mean Sea Level
ANG	Air National Guard
ANGB	Air National Guard Base
ARAR	Applicable or Relevant and Appropriate Requirement
BGS	Below Ground Surface
BOD5	Biochemical Oxygen Demand 5
CE	Civil Engineering
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CoC	Chain-of-Custody
CRSA	Columbia River Sand Aquifer
DI	Deionized
DO	Dissolved Oxygen
DoD	U.S. Department of Defense
DOI	U.S. Department of the Interior
DPT	Direct-Push Technology
DQO	Data Quality Objective
EM	Environmental Manager
EPA	U.S. Environmental Protection Agency
ERPIMS	Environmental Resources Program Information Management System
FD	Fire Department
FM	Field Manager
FS	Feasibility Study
FSS	Fire Suppression System
FTA	Fire Training Area
FW	Fighter Wing
GPS	Global Positioning System
HA	Health Advisory
HDPE	High-Density Polyethylene
IDW	Investigation-Derived Waste
IRP	Installation Restoration Program
JP-4	Jet Propulsion Fuel No. 4
LDPE	Low-Density Polyethylene
MCDD	Multnomah County Drainage District
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NFA	No Further Action
NGB	National Guard Bureau
NTU	Nephelometric Turbidity Unit
ODEQ	Oregon Department of Environmental Quality
ORP	Oxidation-Reduction Potential
OS	Observation Squadron
OUNC	Oregon Utility Notification Center
PA	Preliminary Assessment
PDX	Portland International Airport
PFBS	Perfluorobutanesulfonate
PFHpA	Perfluoroheptanoic Acid

PFHxS	Perfluorohexanesulfonate
PFNA	Perfluorononanoic Acid
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
PID	Photoionization Detector
POL	Petroleum, Oils, and Lubricants
PRL	Potential Release Location
PVC	Polyvinyl Chloride
QA	Quality Assurance
QC	Quality Control
RI	Remedial Investigation
RSL	Regional Screening Level
SI	Site Inspection
SOP	Standard Operating Procedure
SSHP	Site Safety and Health Plan
TGA	Troutdale Gravel Aquifer
U.S.C.	United States Code
UCMR3	Unregulated Contaminant Monitoring Rule
UFP-QAPP	Uniform Federal Policy-Quality Assurance Project Plan
USAF	U.S. Air Force
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile Organic Compound
WGS84	World Geodetic System of 1984
WP	Work Plan

1.0 INTRODUCTION

Leidos was contracted by the National Guard Bureau (NGB) to conduct site inspections (SIs) for perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) at multiple Air National Guard (ANG) Installations. The scope of work at the Portland ANG at Portland International Airport (PDX), Portland, Oregon, herein referred to as Portland Air National Guard Base (ANGB), includes preparation of this Work Plan (WP) to conduct an SI at potential release locations (PRLs) identified at Portland ANGB. This SI WP defines the procedures and strategies for sample collection to determine the presence or absence of PFOS and PFOA in environmental media at the PRLs on Base identified during the preliminary assessment (PA) (BB&E 2016). Sampling will only be performed on the Port of Portland currently being leased by ANG (with the exception of Hangar 375 and Former Installation Restoration Program (IRP) Site 7 Burn Pit). Figure 1-1 presents the Installation location and locations of the PRLs at Portland ANGB. Leidos has prepared this SI WP to satisfy the requirements of Task Order 0011 of NGB Contract Number W9133L-14-D-0007. Project management and quality control (QC) procedures are documented in the Quality Control Plan for Fiscal Year 2017 Phase III Regional Site Inspections for Perfluorinated Compounds at Multiple Air National Guard Installations (Leidos 2017a). An Installation kickoff meeting was held with the project stakeholders on September 6, 2017, and the meeting minutes were submitted on October 6, 2017 (Leidos 2017b).

1.1 PROJECT OBJECTIVES AND SCOPE

An SI will be conducted for each of the PRLs to determine the presence or absence of PFOS/PFOA in surface and subsurface soil, groundwater, and sediment and surface water (sampled media at each PRL will be dependent on the type of PRL); determine if contaminated groundwater has reached the Base boundary; and provide a defensible no further action (NFA) decision, development of data quality objectives (DQOs) for follow-on remedial investigation (RI) activities for PRLs not meeting the NFA criteria, or an interim response action if appropriate.

The scope of work consists of four inter-related tasks: (1) prepare an SI WP, (2) conduct SI and data collection activities, (3) conduct data validation and laboratory oversight activities, and (4) evaluate data from the field effort and applicable historical information to produce an SI Report.

Laboratory analyses will be conducted in accordance with project quality assurance (QA)/QC requirements, as specified in the Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) (Appendix A). The field activities will follow site-specific sampling and health and safety protocols, as identified in the Site Safety and Health Plan (SSHP) (Appendix B). All SI activities will be conducted using established methodologies under U.S. Environmental Protection Agency (EPA) protocols for PFOS/PFOA investigations and meet laboratory reporting requirements. SI activities also will be conducted in accordance with the Supporting Technical Information provided in Attachment 1 of the *Air Force Interim Guidance on Perfluorinated Compounds* (U.S. Air Force [USAF] 2012), *SAF/IE Policy on Perfluorinated Compounds (PFCs) of Concern* (USAF 2016), and the *Air National Guard Environmental Restoration Program Investigation Guidance* (ANG 2009).

1.2 REGULATORY FRAMEWORK

The U.S. Department of Defense (DoD) prefers to conduct environmental restoration activities under the framework established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) when possible because the CERCLA process satisfies the objectives of most cleanup programs: protect human health and the environment, include the public in the decision-making process, and attain environmental restoration objectives (DoD 2012). Under the CERCLA framework, the first two phases of investigation for observed and/or potential sources of contamination are the PA and SI.

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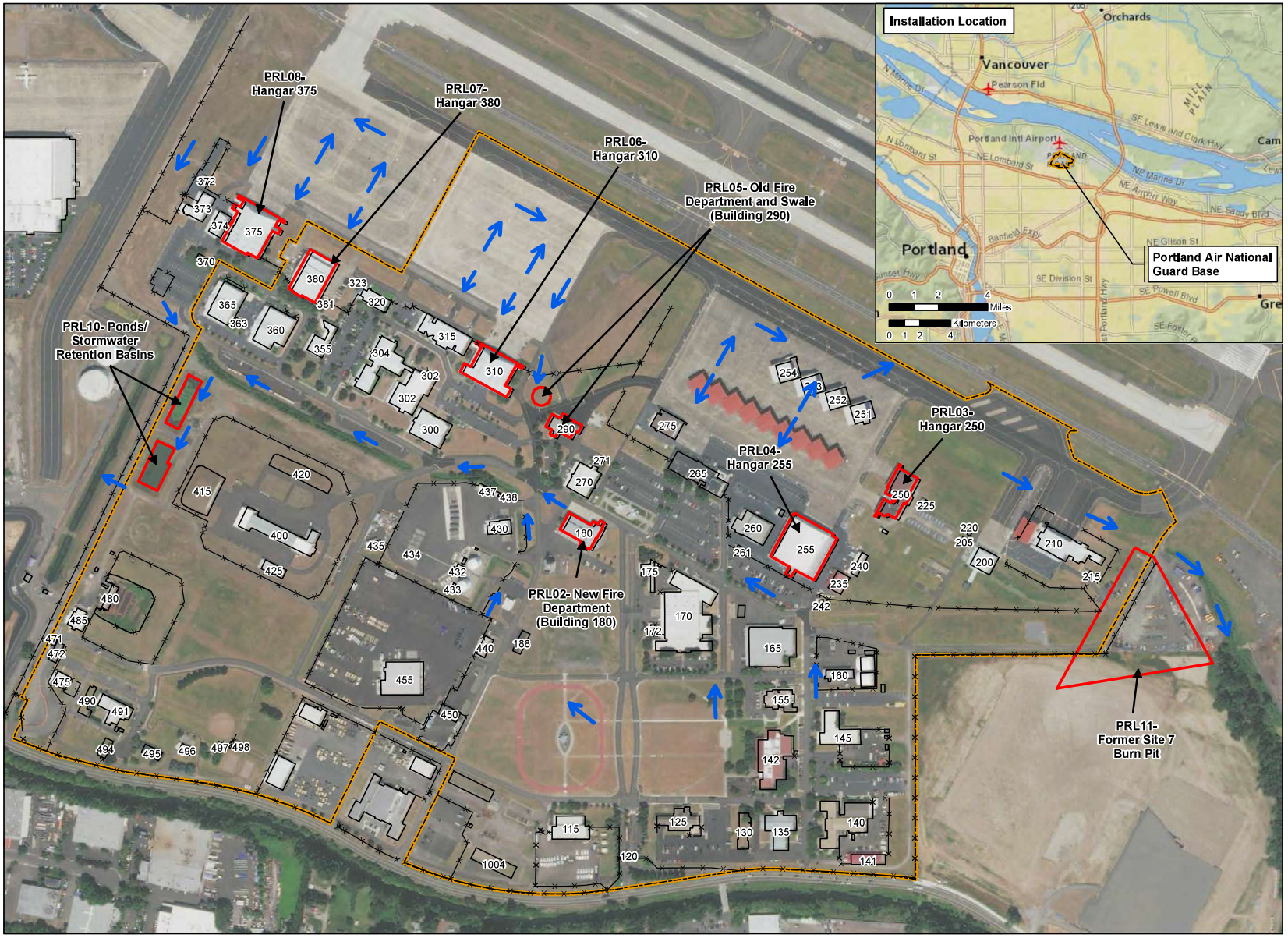

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PFOS/PFOA are emerging contaminants that have not historically been analyzed during site characterization activities; for that reason, minimal sampling data exist for most sites. Currently, no legally enforceable federal standards exist for PFOS/PFOA in water. However, under the Safe Drinking Water Act, EPA issued a series of health advisories (HAs) for PFOS/PFOA, as follows.

In 2009, EPA issued preliminary HA levels for PFOS (0.2 µg/L) and PFOA (0.4 µg/L).

In 2012, EPA published the third Unregulated Contaminant Monitoring Rule (UCMR3), which required public water supplies across the country to sample for a list of 30 unregulated contaminants, including 6 chemicals relevant to this SI (PFOS, PFOA, perfluorobutanesulfonate [PFBS], perfluorononanoic acid [PFNA], perfluoroheptanoic acid [PFHpA], and perfluorohexanesulfonate [PFHxS], collectively referred to as PFOS/PFOA herein). Results of UCMR3-required sampling indicated detections of these compounds at numerous locations, including several near DoD facilities. PFOS/PFOA detections at DoD facilities are often linked to the use of Aqueous Film-Forming Foam (AFFF), which may contain one or more of these chemicals. AFFF is a firefighting agent used to suppress fires involving petroleum hydrocarbons.

Samples collected during the SI will be analyzed for the six UCMR3 chemicals by EPA Method 537 revision 1.1, in accordance with the 2012 Air Force Interim Guidance and the *U.S. Department of Defense Quality Systems Manual for Environmental Laboratories*, Version 5.1 (DoD 2017). Analytical results for PFOS, PFOA, and PFBS will be compared to the screening levels presented in the following paragraphs. No screening levels are currently available for PFNA, PFHpA, and PFHxS.

In May 2016, EPA set a combined drinking water lifetime HA for PFOS and PFOA of 70 ng/L (replacing the 2009 values). This is the level below which adverse health effects are not anticipated to occur over a lifetime of exposure. For PFBS, the residential risk-based screening level for tap water from the November 2017 regional screening level (RSL) table is 400,000 ng/L.

There are also no legally enforceable federal standards for PFOS/PFOA in soil or sediment. Following the process utilized at other ANG Installations around the country, Leidos proposes using residential risk-based screening levels for soil determined using the EPA RSL calculator and the November 2017 RSL tables. The calculated screening levels are as follows:

- PFOS = 1,260 µg/kg;
- PFOA = 1,260 µg/kg; and
- PFBS = 1,260,000 µg/kg.

As of the preparation of this SI WP, no site-specific soil screening levels have been developed in Oregon. Furthermore, no surface water or sediment screening criteria have been established by EPA or the Oregon Department of Environmental Quality (ODEQ) at this time. Leidos will use the EPA 2016 drinking water lifetime HA levels (PFOS and PFOA) and residential risk-based screening level for tap water (PFBS) for groundwater and surface water screening and the residential risk-based soil screening levels determined using the EPA RSL calculator (https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search) and the November 2017 EPA RSL tables (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017) for soil and sediment. The most current RSL values will be used as the screening levels in the SI Report.

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2.0 INSTALLATION BACKGROUND INFORMATION

2.1 INSTALLATION DESCRIPTION

Portland ANGB is the home of the 142nd Fighter Wing (FW) in Portland, Oregon. Portland ANGB is located immediately adjacent and south of the PDX and occupies approximately 245 acres of land leased from the Port of Portland (Port) (BB&E 2016). PDX covers roughly 3,000 acres; has three runways; and is located 6 miles northeast of downtown Portland, Oregon in Multnomah County. The site location is shown in Figure 1-1.

2.2 HISTORY AND CURRENT OPERATIONS

PDX started as a municipal airport in the early 1940s. The 123rd Observation Squadron (OS) of Portland ANG was organized at the Portland-Columbia Airport on July 30, 1940, then renamed the 142nd FW when it deployed overseas during World War II. Post war, in 1950, most of the area currently occupied by Portland ANG was converted into an active U.S. Air Force Base, until Portland ANG resumed control again in 1964 (Hazardous Materials Technical Center [HMTC] 1987). Since the Base was established, Portland ANG has leased or occupied space within the PDX facility. Today, PDX is the busiest commercial airport for passenger and air cargo traffic in the State of Oregon. It is a civil-military airport that serviced roughly 18.3 million passengers in 2016. The 142nd FW is currently an air reserve component of the U.S. Air Force and flies F-15C/D Eagle fighters (ANG 2010a).

2.3 HISTORY OF CONTAMINATION

Base operations that could have contributed to contamination of soil, groundwater, sediment, and surface water include fire training areas (FTAs) and non-FTAs. FTA PRLs are sites where AFFF was likely used for fire suppression during training activities. Non-FTA PRLs are sites where AFFF was stored, released, and/or likely to have been released, such as crash sites, hangars, fuel spill areas, hazardous waste storage facilities, firefighting equipment testing areas, stormwater and/or surface water drainage features, outfalls, wastewater treatment plants, or AFFF ponds.

When AFFF is released to the environment, PFOS/PFOA can migrate into soil and groundwater. The amount of PFOS/PFOA that migrates to groundwater depends on the type and amount of AFFF used, where it was used, the type of soil, and other factors. PFOS/PFOA may migrate readily from soil to groundwater. As stated in Section 1.2, EPA has not established screening levels for PFOS/PFOA in soil. The primary exposure pathway for PFOS/PFOA is the ingestion of contaminated drinking water.

BB&E's *Perfluorinated Compounds Preliminary Assessment Site Visit Report, Portland Air National Guard, 142nd Fighter Wing, Portland, Oregon* (BB&E 2016) evaluated a total of 10 PRLs and recommended 9 of these for further investigation under an SI (Table 2-1). During the September 2017 site visit, stakeholder discussions resulted in deviation from the PA with respect to the PRLs being evaluated in the SI. It was determined that investigation at the POL Storage – Building 431 would be replaced with investigation at former IRP Site 7. No documentation was available showing that soil, groundwater, sediment, and surface water at Portland ANGB have been tested for PFOS/PFOA; therefore, these compounds could be present in media at any of these PRLs. The sections below briefly describe the operational history and waste characteristics of the PRLs, as presented in the PA Report. Some of the descriptions have been updated based on information obtained during the Installation site visit. PRL numbers correspond to the area of concern designation used in the PA Report.

Table 2-1. Preliminary Assessment Report Summary and Recommendations

No.	Potential AFFF PRL	Rationale	Recommendation
1	Base Supply – Building 170	The station has stored AFFF at this location for at least the past 10 years. According to Base personnel, no AFFF was spilled in the building.	NFA
2	New Fire Department – Building 180	FD personnel indicated that there were minor spills, which occurred during filling the vehicles over the years from onsite containers and minor leaks from the equipment. Additionally, at least three occurrences of AFFF being discharged to the stormwater sewer system were documented in the Annual Storm Water Reports.	Proceed to SI. Focus on groundwater.
3	Hangar 250	Minor leaks of AFFF have occurred in the mechanical room. There are no records of inadvertent releases in the hangar; however, if releases did occur, they may have potentially impacted the adjacent ramp.	Proceed to SI. Focus on soil and groundwater at the downgradient edges of the ramp based on surface drainage patterns.
4	Hangar 255	Minor leaks of AFFF have occurred in the mechanical room, with one inadvertent release in the main hangar. It is likely that most of the inadvertent release of AFFF was hosed off into the trench drain that connects to the sanitary sewer systems, with some of the AFFF making its way onto the ramp, and then into the storm sewer system.	Proceed to SI. Focus on soil and groundwater at the downgradient edges of the ramp based on surface drainage patterns.
5	Old Fire Department and Swale – Building 290	FD personnel indicated that there were minor spills, which occurred during filling the vehicles over the years from onsite containers and minor leaks from the equipment. Additionally, at least one occurrence of AFFF being discharged to the stormwater sewer system is documented in the Annual Storm Water Reports. Reports of AFFF making its way to the drainage swale also have been documented.	Proceed to SI. Focus on soil, sediment, surface water, and groundwater.
6	Hangar 310	Minor leaks of AFFF have occurred in the mechanical room, with an inadvertent release in the main hangar. It is likely that most of the inadvertent release of AFFF was hosed off into the trench drain that connects to the sanitary sewer systems, with some of the AFFF making its way onto the ramp, and then into the storm sewer system.	Proceed to SI. Focus on soil and groundwater at the downgradient edges of the ramp based on surface drainage patterns.
7	Hangar 380	AFFF was stored in fire suppression equipment in the mechanical room of Hangar 380. The fire suppression system's tanks are no longer present and were reportedly removed in 2005. There were no known discharges in the room or in the main hangar; however, if releases did occur, they may have potentially impacted the adjacent ramp.	Proceed to SI. Focus on soil and groundwater at the downgradient edges of the ramp based on surface drainage patterns.
8	Hangar 375	Minor leaks of AFFF have occurred in the mechanical room, with an inadvertent release in the main hangar. It is likely that most of the inadvertent release of AFFF was hosed off into the trench drain that connects to the sanitary sewer systems, with some of the AFFF making its way onto the ramp, and then into the storm sewer system.	Proceed to SI. Focus on soil and groundwater at the downgradient edges of the ramp based on surface drainage patterns.
9	POL Storage – Building 431	This building formerly contained the AFFF system tank that provided fire protection for the fuel tanks.	Proceed to SI. Focus on soil and groundwater.
10	Ponds/Storm Water Retention Basins	These two ponds receive 95% of the Base's stormwater discharges. All of the previously aforementioned releases to the stormwater system eventually made their way to these two ponds.	Proceed to SI. Focus on sediment, surface water, and groundwater.

AFFF = Aqueous film-forming foam.
NFA = No further action.
FD = Fire department.
SI = Site investigation.
POL = Petroleum, oils, and lubricants.
PRL = Potential release point.

2.3.1 Fire Training Areas

Based on the PA Report, there is no evidence that an FTA is or was located within the footprint of the Base's boundary. Portland ANG fire training was conducted from 1957 to 1978 at former IRP Site 7, which is currently PDX property (BB&E 2016). This location was previously investigated during an SI, RI, and feasibility study (FS). The overall site conclusion was that NFA was required for soil and that the constituents detected in groundwater are isolated detections not indicative of persistent groundwater contamination (Environmental Resources Management [ERM] 2001). The investigations did not include PFAS/PFOA analysis. During the September 2017 Installation site visit, the stakeholders agreed to include the Former IRP Site 7 (PRL 11) in this SI despite the site's location off Base. A brief site history is provided below.

2.3.1.1 PRL 11 – Former IRP Site 7 Burn Pit

The former burn pit area is southeast of Buildings 210 and 215 and is mostly outside of the Portland ANGB boundary. The majority of IRP Site 7 lies on Port of Portland property. The burn pit was used for fire training exercises between 1957 and 1978. Several thousand gallons of flammable liquids, including waste oil, jet propulsion fuel No. 4 (JP-4) jet fuel, and solvents, reportedly were burned each year in the pit (HMTC 1987). The former burn pit area has since been filled with gravel and compacted (ERM 2001).

2.3.2 Non-Fire Training Areas

2.3.2.1 PRL 1 – Building 170 – Base Supply

The Base Supply Building – Building 170 was built in 1990 and is located in the central portion of the Base. The building has stored AFFF for at least the last 10 years but likely has stored AFFF since its first use on the Base. According to Base supply personnel, no AFFF has been spilled in the building. At the time of the PA, 27, 55-gal drums of AFFF manufactured by 3M and National were stored at this location (BB&E 2016). The PA (BB&E 2016) recommended NFA, and this PRL will not be discussed further or evaluated in the SI WP.

2.3.2.2 PRL 2 – Building 180 – New Fire Department

The new Fire Department (FD) Building 180 was constructed in 2005. According to personnel that have worked at the Base FD since the late 1980s, the AFFF stored at this location is currently in Fire/Crash Response vehicles, including three crash trucks (two 25-gal trucks and one 250-gal truck), one fire engine (250 gal), and one foam trailer (2,000 gal). One former crash truck, awaiting disposal at the motor pool, contained 130 gal. FD personnel indicated that there were minor spills, which occurred during filling the vehicles over the years from onsite containers (now removed), and minor leaks from the equipment. Additionally, at least three occurrences of AFFF being discharged to the stormwater sewer system were documented in the Annual Storm Water Reports (BB&E 2016).

2.3.2.3 PRL 3 – Hangar 250

Hangar 250 was built in 1985. AFFF is stored in fire suppression equipment in the mechanical room of this hangar. According to the label, the tank has a design capacity of 200 gal but the net contents are 55 gal of AFFF. There have been minor leaks of AFFF in this room, with no reported inadvertent releases in the hangar. Currently, no AFFF is present in the hangar, although one empty 55-gal barrel is currently present. No records of spills are reported to have occurred at this location (BB&E 2016).

2.3.2.4 PRL 4 – Hangar 255

Hangar 255 was constructed in 1956. AFFF is stored in fire suppression equipment in the mechanical room of this hangar. The placard on the tank states that it contains 600 gal of AFFF manufactured in 1994. There have been minor leaks of AFFF in this room, with an inadvertent release in the main hangar (BB&E 2016).

On October 19, 2005, Environmental Management personnel noticed foam on the pavement near Hangar 255 and questioned the local office personnel. The investigation indicated that the AFFF system in the hangar had been tested earlier that day as part of an annual testing program and 0.5 gal of pure AFFF mixed with 49.5 gal of water that overflowed the system and was rinsed off the pavement into a storm drain located on the south side of Hangar 255. Environmental Management personnel reported the incident to the ODEQ and further AFFF testing that day was suspended. Environmental Management personnel inspected the stormwater ditches and stormwater detention ponds to look for evidence of foam. On October 20, 2005, the ditches and ponds were again inspected and no foam was evident. A sample was collected at Outfall 10 and analyzed for biochemical oxygen demand 5 (BOD5). The actual BOD5 result was greater than 300 mg/L, since the high oxygen concentrations saturated the test and could not yield a true value. On October 21, 2005, the stormwater ditch feeding the north pond showed evidence of foam. Six aerators in the north pond and eight aerators in the south pond kicked up small patches of persistent foam covering an estimated area of 16 sq ft. By the afternoon that day, the foam had dissipated. A sample was again collected and analyzed for BOD5, which yielded a concentration of 10 mg/L. The problem was discussed with Civil Engineering (CE) management personnel. CE personnel redesigned the plumbing configuration to prevent future annual AFFF testing at Hangar 255 from discharging to the storm sewer system (BB&E 2016).

2.3.2.5 PRL 5 – Building 290 – Old Fire Department and Swale

Building 290 was built in 1986 and housed the old FD from approximately 1986 to 2005. According to personnel that have worked in this building since the late 1980s, AFFF was historically stored at this location in Fire/Crash Response vehicles. FD personnel indicated that there were minor spills, which occurred during the filling of vehicles over the years from onsite containers (now removed), and minor leaks from the equipment. Additionally, personnel indicated at least one spill of AFFF of unknown quantity discharged to the drainage swale northwest of the building (BB&E 2016).

2.3.2.6 PRL 6 – Hangar 310

Hangar 310 was built in 1988. AFFF is stored in fire suppression equipment in the mechanical room of this building. There are three tanks in the room, very similar in size to the tanks in Hangar 375, although there were no volumes listed on the tanks. It is presumed that two of the tanks contain 800 gal and one contains 600 gal. The date of manufacture listed on the tanks is 1987. There have been minor leaks of AFFF in the room, with an inadvertent release in the main hangar. It is likely that most of the inadvertent release of AFFF was hosed off into the floor drain within the hangar, which is connected to the sanitary sewer system. Some of the AFFF would also likely have made its way onto the ramp to the north of Hangar 310, and then into the storm sewer system (BB&E 2016).

2.3.2.7 PRL 7 – Hangar 380

Hangar 380 was built in 1986. AFFF was stored in fire suppression equipment in the mechanical room of this building. There currently are no tanks in the room. It is reported that the tanks were removed in 2005. Personnel interviewed did not know of any discharges in the room or in the main hangar (BB&E 2016).

2.3.2.8 PRL 8 – Hangar 375

Hangar 375 was built in 1988. AFFF was stored in fire suppression equipment in the mechanical room of this building. There are three tanks in the room with no labels listing their volumes. It is presumed that two of the tanks contain 800 gal and one contains 600 gal. There have been minor leaks of AFFF in the room, with an inadvertent release in the main hangar. It is likely that most of the inadvertent release of AFFF was hosed off into the floor drain within the hangar, which is connected to the sanitary sewer system. Some of the AFFF would also likely have made its way onto the ramp to the north of Hangar 375, and then into the storm sewer system (BB&E 2016).

2.3.2.9 PRL 9 – Building 431 – POL Storage

Petroleum, oils, and lubricants (POL) are stored in Building 431, which was constructed in 1994. This building formerly contained the AFFF system tank that provided fire protection for the fuel tanks. No leaks or inadvertent discharges were reported and the system was removed in 2013 (BB&E 2016). During the September 2017 Installation site visit/kick-off meeting with Portland ANG and ODEQ, the stakeholders concluded that PRL 9 – Building 431 would not be carried over to the SI for further investigation. This conclusion is based on an inspection of AFFF storage/use at this location, an interview with an ANG employee during the SI, and supporting information presented in the PA.

2.3.2.10 PRL 10 – Ponds/Stormwater Retention Basins

There are two man-made, shallow ponds located in the west central portion of the Base that receive 95% of the Base's stormwater discharge. These ponds are fed by ditches that converge just north of the ponds where the stormwater is discharged into the ponds through a pipe. All of the previously aforementioned releases to the storm sewer system eventually made their way to these two ponds (BB&E 2016). The ponds are located near the western boundary of the Base, as shown in Figure 1-1.

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3.0 ENVIRONMENTAL SETTING

3.1 CLIMATE

Portland ANGB is situated in a temperate climate region with mild winters and summers. The area is subject to low-volume, high-frequency rainfall events in the early spring and fall. The average temperature of Multnomah County, Oregon is 53.60°F, which is higher than most of Oregon and is about the same as the national average temperature of 54.45°F. Annual rainfall amounts in Multnomah County are 45.59 in. with 105.04 days of 0.1 in. of rain or more of precipitation. Average annual snowfall in the area is 2.80 in. Average wind speed for the area is 14.86 miles per hour and is usually out of the west and northwest (USA.com 2017).

3.2 TOPOGRAPHY

Portland ANGB is located on a levee-protected floodplain of the Columbia River. Portland ANGB and PDX are bordered by the Columbia River to the north and the Columbia Slough to the south. The local floodplain has little to no natural topography and gently slopes north toward the Columbia River. PDX and Portland ANGB average 30 ft above mean sea level (AMSL) (BEM Systems [BEM] and ARCADIS U.S. [Arcadis] 2013).

3.3 GEOLOGY

Multnomah County and Portland, Oregon are located on a topographic boundary known as the Columbia Plateau, a region marked by Eocene volcanic features and late Miocene fluvial deposits from the Cascade Mountain Range. Portland ANGB is situated on quaternary age terrace alluvium, composed of floodplain and terraced bedded sands, silts, and clays ranging in thickness from 100 to 200 ft. The terrace alluvium locally overlies the Troutdale Formation, which is approximately 800 to 900 ft thick, and while nearly horizontal has very gentle slopes to the west and southwest. The Troutdale Formation consists of well-sorted, coarse-grained sandstone and a conglomerate with well-rounded quartzite pebbles set in a very fine clay mineral matrix. The upper few feet of the formation are highly weathered and nearly indistinguishable from prolonged exposure. The Troutdale Formation strikes to the north and gently dips to the west and southwest at 2 degrees (U.S. Department of the Interior [DOI] 1963).

3.4 SOIL

Soils present at Portland ANGB have been classified during previous site investigations and are separated into two distinct categories. The primary soil underlying most of Portland ANGB is the Pilchuck Soil Complex. The Pilchuck Soil Complex is composed of 1 ft of silty topsoil underlain by 5 ft of well-sorted, highly permeable, dark brown sands. The other soil type found at Portland ANGB is the Sauvie-Rafton Complex, consisting of 75 to 90 in. of poorly drained soils that are silty loam to silty clay in texture. Sauvie-Rafton soils are a common component of floodplain structures along the Columbia River, much like the one Portland ANGB is situated on (ERM-West, Inc. [ERM] 2013).

3.5 SURFACE WATER HYDROLOGY

There are natural and significant surface water bodies and both navigable and non-navigable waterways at and adjacent to Portland ANGB. Surface water flow from the Portland ANGB and PDX eventually drains to the Columbia Slough. The Columbia Slough is directly south of Portland ANGB and is a complex of narrow and shallow channels extending approximately 18 miles within the southern floodplain of the Columbia River. The Columbia River is the major surface water feature located to the north of Portland

ANGB and PDX. The Columbia Slough receives water from springs to the northeast of PDX, local groundwater seepage from shallow saturated zones, as well as local surface water runoff from Portland ANGB.

Surface water flow at Portland ANGB is dictated by the Base's man-made surface drainage system. Stormwater is captured by drainage ditches throughout the property, which then directs the flow to two man-made stormwater Detention Ponds on the Portland ANGB. The drainage ditch footprint occupies approximately 1.8 acres and consists of two branches. The main branch is approximately 2,800 ft long, and the north branch extends approximately 1,700 ft. The two branches converge at the point of discharge to the detention ponds. The outfall from the upper detention pond can be closed allowing the pond to be used as a containment area. Stormwater is discharged from the upper pond to the lower pond, before it is conveyed to PDX's detention pond, and then to Columbia Slough (ERM 2013).

3.6 HYDROGEOLOGY

Significant hydrogeologic units are present in the vicinity of PDX. These units include, in descending order, the Overbank Deposits, the Columbia River Sand Aquifer (CRSA), the Troutdale Gravel Aquifer (TGA), Confining Unit 1, the Troutdale Sandstone Aquifer, Confining Unit 2, and the Sand and Gravel Aquifer. Several of the hydrogeologic units underlying PDX are part of a regional aquifer system that serves as the city of Portland's supplemental water supply. Shallow groundwater at the Base occurs within the shallow alluvial terrace deposits and has been encountered during various investigations at depths ranging from 2 to 10 ft below ground surface (BGS). The inferred groundwater flow direction in the Overbank Deposits is predominantly toward the west and northwest. This differs from the CRSA, where recorded water level measurements suggest that the groundwater flow direction fluctuates between northeast and south. Generally, the water table is lowest in the late summer and fall and highest in the winter and spring (BB&E 2016).

According to the 2006 environmental baseline survey, the shallowest water bearing zone is a discontinuous, unconfined to semi-confined water-bearing sand unit, the top of which ranges in depth from 5.5 to 9.0 ft BGS and ranges in thickness from 3 to 19 ft. The discontinuous lenses of the upper zone are in scattered locations throughout the northern, eastern, and southwestern portions of Portland ANGB (CH2M Hill 2006).

Groundwater flow direction varies between water-bearing units and tends to fluctuate seasonally and in response to changes in the Columbia River stage caused by releases from Bonneville Dam. In the shallow aquifer, groundwater dominantly flows toward the west and northwest, although the flow direction varies considerably locally. Water levels in the shallow zone are influenced by recharge/discharge through drainage ditches throughout the subject property and the Columbia Slough to the south, although the hydraulic connection between the slough and the shallow aquifer may be muted by low-permeability sediments in the bed of the slough (CH2M Hill 2006).

3.7 CRITICAL HABITATS AND ENDANGERED/THREATENED SPECIES

According to the U.S. Fish and Wildlife Service (USFWS), the following federally listed threatened, endangered, or proposed species are known to or are believed to occur in Multnomah County, Oregon (USFWS 2017a):

- Mammals:
  - Columbian white-tailed deer (*Odocoileus virginianus leucurus)* – Threatened.

- Snails:
  - Puget oregonian (*Cryptomastix devia*) – Threatened.

- Fish:
  - Bull trout *(Salvelinus confluentus*) – Threatened.

- Birds:
  - Northern spotted owl *(Strix occidentalis caurina)* – Threatened,
  - Yellow-billed cuckoo (*Coccyzus americanus*) – Threatened,
  - Marbled murrelet (*Brachyramphus marmoratus*) – Threatened, and
  - Streaked horned lark (*Eremophila alpestris strigata*) – Threatened.

- Plants:
  - Nelson's checker-mallow (*Sidalcea nelsoniana*) – Threatened,
  - Golden paintbrush (*Castilleja levisecta*) – Threatened, and
  - Kincaid's lupine (*Lupinus sulphureus ssp. kincaidii*) –Threatened.

The potential for these species to occur in Multnomah County does not mean they are present at Portland ANGB.

The USFWS National Wetlands Inventory indicates roughly 0.54 acres are designated as wetlands along the ditch lines within the Portland ANGB property (USFWS 2017b).

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4.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The following sections describe potential applicable or relevant and appropriate requirements (ARARs) for the PRLs discussed within this SI WP. During the investigation and subsequent cleanup process, remedial alternatives are evaluated for compliance with identified ARARs. No remedial action is planned at this time; however, this section has been included to identify and document appropriate chemical-specific screening criteria for the evaluation of data gathered during the SI field activities.

4.1 CHEMICAL-SPECIFIC REQUIREMENTS

Chemical-specific requirements include limitations set on the amount or concentration of a chemical that can be either present in or discharged to the environment under promulgated federal and/or state regulations. These limits are typically health- or risk-based requirements.

PFOS/PFOA are emerging contaminants that have not been historically analyzed during site characterization activities; for that reason, minimal sampling data exist for most sites. Currently, no legally enforceable federal standards exist for PFOS/PFOA in environmental media. However, as explained in Section 1.2, Leidos will use residential risk-based screening levels for soil and sediment determined using the EPA RSL calculator and the November 2017 RSL tables for PFOS, PFOA, and PFBS. The EPA 2016 drinking water lifetime HA levels for PFOS and PFOA (combined) and the PFBS residential risk-based screening level for tap water from the RSL tables will be used for groundwater and surface water.

4.2 ACTION-SPECIFIC REQUIREMENTS

Action-specific ARARs are activity- and technology-based requirements that are applicable or relevant and appropriate to one or more remedial alternatives (EPA 1998). Potential federal ARARs, particularly if remediation is warranted and conducted at one or more of the sites, may include the following:

- 10 United States Code (U.S.C.) Sections 2701 through 2708 and 2810, Defense Environmental Restoration Program;
- 29 Code of Federal Regulations (CFR) 1926, Safety and Health Regulations for Construction;
- 40 CFR 260 through 279, Hazardous Waste Management and Resource Conservation and Recovery Act;
- 40 CFR 300 through 312, the National Oil and Hazardous Substances Pollution Contingency Plan and CERCLA; and
- 49 CFR 171 through 173 and 177, U.S. Department of Transportation Hazardous Materials Regulations.

4.3 LOCATION-SPECIFIC REQUIREMENTS

The impact of a contaminated site on human health and the environment is often determined by its location (EPA 1998). Compliance with location-specific regulatory requirements prevents damage to unique or sensitive areas, such as floodplains, historic places, wetlands, and fragile ecosystems, and can limit remedial activities that are potentially harmful because of where they take place. Federal actions that

involve potential impacts to, or take place within, sensitive areas should avoid long- and short-term adverse effects associated with occupancy and modification of the area. The Endangered Species Act is a potential ARAR that needs to be considered.

The Endangered Species Act (16 U.S.C. 1531 et seq., and 50 CFR 402) necessitates action be taken to protect any species listed as threatened and endangered, as well as their habitat. No threatened or critical habitat species are anticipated to be affected by the sampling activities associated with this investigation. No unique or sensitive areas will be impacted by the proposed field activities.

5.0 PERMITS AND PRE-FIELD ACTIVITIES

A Base dig permit will be required prior to intrusive field activities. No other permits are required for the SI field activities. However, several requirements must be met prior to field activities.

5.1 FIELD SCHEDULE COORDINATION

Leidos will confirm the fieldwork schedule with the Base Environmental Manager (EM) at least 2 weeks in advance of mobilization. Work will be conducted Monday through Friday between 0600 and 1800 unless arranged otherwise in advance.

5.2 BASE ACCESS

Leidos will coordinate with the Base EM to obtain Base access for all field personnel, including subcontractors. In addition, Leidos will coordinate with the current leaseholders/owners for access to Hangar 375 (PRL 8) and Former IRP Site 7 (PRL 11) for all field personnel, including subcontractors. All required security paperwork will be submitted at least 2 weeks prior to scheduled field activities. Upon arrival, the Leidos Field Manager (FM) will meet with the Base EM and outline planned activities. This will provide the Base EM an opportunity to relay any changes in site conditions or real-time information relevant to the specific sampling event. The FM will alert the Base EM that field activities are complete prior to demobilization.

5.3 PHOTOGRAPHY

Photography of SI field activities is permitted, with the exception of photographs showing aircraft. Leidos will notify the Base EM in advance and complete the paperwork needed to obtain approval for taking photographs during the SI field activities.

5.4 UTILITY CLEARANCE

A dig permit from Portland ANGB is required. Before starting field activities, Leidos will coordinate with Base personnel and Oregon Utility Notification Center (OUNC) (http://callbeforeyoudig.org/oregon/). OUNC will coordinate with local utility providers to identify and mark the locations of underground utilities and meet the Base requirements for an approved dig permit. ANG will mark private utilities.

The utility surveys are necessary to optimize the proposed technical approach and reduce the potential for utility damage. Prior to any drilling activities, Leidos will review Base utility maps with Base personnel, and select sample locations. Prior to drilling, a site walk and inspection of proposed locations will be conducted to ensure location access and safety. Based on the findings during the utility mark out and the site walk, proposed borings may be adjusted accordingly. Any location within 25 ft of a known hazardous utility (i.e., gas or electric) will be cleared via soft-dig methods (hand auger or vacuum excavation) to a depth of 5 ft BGS. For all other utilities marked by OUNC or ANGB personnel, sample locations will be cleared via hand auger or soft-dig methods following the state's protocol (generally soft-dig clearing within 2.5 to 5 ft of a utility). Every attempt will be made to relocate sample locations so they are more than the minimum distance from known utilities.

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6.0 INVESTIGATION APPROACH AND PROCEDURES

6.1 WORK PLAN OBJECTIVES

This WP has been prepared to outline the sampling rationale for the SI phase and establish the methods and procedures that will be used during field activities to ensure that DQOs are satisfied.

6.2 GENERAL APPROACH (STRATEGY AND RATIONALE)

SI field activities will include the following:

- Surface and subsurface soil sampling;
- Confirmation of local groundwater flow direction at the Installation using historical data and/or temporary piezometers;
- Groundwater sampling from newly installed monitoring wells located downgradient from the PRL;
- Groundwater sampling from newly installed monitoring wells at the Installation boundary;
- Sediment and surface water sampling; and
- Global Positioning System (GPS) survey of soil borings, sediment, and surface water locations (newly installed wells require a professional licensed surveyor to survey the horizontal location and elevation).

6.2.1 Potential Media of Concern

Potential media of concern at Portland ANGB include soil, groundwater, sediment, and surface water. Depth to shallow groundwater is anticipated to range from approximately 2 to 10 ft BGS across the Installation (BB&E 2016). Soil sampling will be limited to the unsaturated zone.

6.2.2 Potential Sources of Contamination (Conceptual Site Model)

When AFFF is released to the environment, PFOS/PFOA can migrate into soil and groundwater. Once in the environment, the compounds are persistent and may migrate through erosion, surface water, groundwater, and/or biologic uptake. The amount of PFOS/PFOA that enters the environment depends on the type and amount of AFFF used, where and when it was used, the type of soil, and other factors. If private or public wells are located nearby, they could potentially be affected by PFOS/PFOA. Similarly, surface water features may be impacted and may convey PFOS/PFOA to downgradient receptors. Groundwater at the Base is not currently used as a source for drinking water; however, the Portland well field is located 0.75 miles southeast of Portland ANGB and provides the city of Portland's supplemental drinking water supply. Migration of groundwater to these wells or downgradient water wells may create a potential pathway for future receptors of drinking water. In addition, due to the shallow groundwater table, groundwater is considered a potential pathway for migration of PFOS/PFOA to surface water.

Potential environmental releases of AFFF at ANG Installations include, but are not limited to, the following locations and activities:

- FTAs;
- Fire stations;

- Fire truck equipment testing and maintenance areas;
- Aircraft for fuel emergency response activities;
- Testing or emergency activation of AFFF fire suppression systems (FSSs) in hangars and buildings;
- FSS releases in U.S. Air Force hangars and buildings due to malfunctions;
- Other spills and releases; and
- Stormwater and/or surface water via drainage canals, outfalls, wastewater treatment plants, or AFFF ponds.

6.2.3 Water Levels

The general flow direction for shallow groundwater at Portland ANGB is assumed to flow west-northwest (BB&E 2016). Since there are no existing wells, six temporary piezometers will be installed during the SI to confirm local groundwater flow direction. The temporary piezometers will be installed at selected soil boring and/or permanent monitoring well locations proposed for the SI. The temporary piezometers will be abandoned following water level measurements. The permanent monitoring wells will be placed immediately downgradient from the PRLs based on the temporary piezometer water levels and historical water level data. The water levels will be collected from the piezometers and monitoring wells during a single mobilization.

6.2.4 Environmental Sampling

Twenty-one soil borings will be advanced to assess the PRLs. Soil borings will be advanced up to 15 ft or refusal (whichever is encountered first), with two samples collected per boring: one at 0 to 2 ft BGS and one from the interval immediately above the water table. At PRL 10, soil samples will be collected from immediately above and below the liner within the ditch.

No existing monitoring wells are available for the SI at Portland ANGB. Eight newly installed permanent monitoring wells will be installed downgradient from the PRLs and/or at the Base boundary. In addition to soil and groundwater samples, a minimum of one sediment and one surface water sample also will be collected from the swale associated with Building 290 (PRL 5), the catch basin at Hangar 380 (PRL 7), and the ponds/stormwater retention basins (PRL 10). The sediment samples collected from PRLs 5 and 10 will be collected as composite sediment samples. The depth and volume of water and resulting accessibility of sediment at PRL 10 will be taken into account to ensure the safety of the field staff conducting the sampling.

A standardized numbering system will be used to identify all samples collected during the SI activities. The numbering system provides a tracking procedure to ensure accurate data retrieval of all collected samples. A listing of the sample identifiers will be maintained by the Leidos Data Manager. Sample identifiers for samples collected at Portland ANGB will follow the format outlined below:

- Soil samples: Primary sample identifiers will consist of the site identifier (POR), a two-digit number representing the nearest PRL potentially impacting the boring location (e.g., 01 = PRL 1), an alpha-numeric boring location identifier (SB1, SB2), and a two-digit alpha-numeric character representing the first or second sample collected (surface soil 0 to 2 ft BGS is 01; interval immediately above the water table is 02):
    - POR01-SB1-01 represents the surface soil sample collected at PRL 01, boring SB-1.

- POR01-SB1-02 represents the subsurface soil sample collected immediately above the water table at boring SB-1.

- New monitoring wells: Primary sample identifiers will consist of 'MW' plus the site identifier (MW-POR); a two-digit number representing the nearest PRL to the boring location (e.g., 06 = PRL 06), followed by a two-digit number (01 for the first well associated with a specific PRL, 02 for the second well associated with that PRL, etc.); and a two-digit number (e.g., 01 is the first sample collected):

  - MW-POR06-01-01 represents the SI groundwater sample from the well installed nearest to PRL 06.

- Sediment samples: Primary sample identifiers will consist of the site identifier (POR), a two-digit number representing the PRL associated with the sediment location (e.g., 07 = PRL 07), the alpha-numeric designation 'SD1' to indicate the sediment sample from the first sediment location associated with PRL 07, and a two-digit number (e.g., 01 is the first sample collected):

  - POR07-SD1-01 represents the SI sediment sample collected at PRL 07.

- Surface water samples: Primary sample identifiers will consist of the site identifier (POR), a two-digit number representing the PRL associated with the surface water location (e.g., 07 = PRL 07), the alpha-numeric designation 'SW1' to indicate the surface water sample collected from the first surface water location associated with PRL 07, and a two-digit number (e.g., 01 is the first surface water sample collected):

  - POR07-SW1-01 represents the SI surface water sample collected at PRL 07.

The overall sampling approach with descriptions and supporting rationale for each PRL is provided in Table 6-1. An overview of PRL locations is shown in Figure 1-1. Detailed maps of proposed sample locations are shown in Figures 6-1 and 6-2.

6.2.5 Quality Control Samples

Field duplicate samples, field blanks, reagent blanks, and equipment rinsate blanks will be submitted to the analytical laboratory to provide a means to assess the quality of the data resulting from the field sampling program. Field blank samples from all water sources, including on-Base potable water, used during SI field activities will be collected concurrently with the SI environmental samples and will be analyzed to check for procedural contamination and ambient conditions at the site that may have caused sample contamination. Reagent blanks will be collected to determine if method analytes or other interferences are introduced throughout the entire shipment, sampling, and analytical process. Duplicate samples will be submitted to provide a QA check on analytical procedures and results. The required QC samples and associated frequencies for this project are listed in Table 6-2. Table 6-3 provides details on the requirements for containers, preservation, and sample hold times. UFP-QAPP Worksheet #20 (Appendix A) provides more information on QC samples, and UFP-QAPP Worksheet #28 (Appendix A) provides more information on analytical laboratory QC samples, including matrix spike (MS) and matrix spike duplicate (MSD) samples.

Table 6-1. Proposed Sample Locations and Analyses for Portland ANGB

PRL Number	Medium	Location Identifier	Sample Identifier[a]	Lithologic Log	Analysis[b]	Notes
2: New Fire Department – Building 180	Soil	POR02-SB1	POR02-SB1-01	Yes	PFOS/PFOA	The southern sample is within the building where evidence of dripping from an AFFF line was noted during the site walk and is associated with the center bay within the building.
			POR02-SB1-02			
		POR02-SB2	POR02-SB2-01			Soil sample from immediately north of the building where three instances of AFFF were discharged to the stormwater drain and catch basin located north of the building.
			POR02-SB2-02			
	GW	MW-POR02-01	MW-POR02-01-01	Yes	PFOS/PFOA	New well based on stakeholder interest in the center bay of the building.
3: Hangar 250	Soil	POR03-SB1	POR03-SB1-01	Yes	PFOS/PFOA	Soil sample from grassy areas immediately northwest of the hangar bay and northwestern corner of the building. Groundwater will be evaluated using MW-POR04-01 based on collocation of PRLs 3 and 4.
			POR03-SB1-02			
		POR03-SB2	POR03-SB2-01			
			POR03-SB2-02			
4: Hangar 255	Soil	POR04-SB1	POR04-SB1-01	Yes	PFOS/PFOA	Soil samples immediately north and west of the hangar.
			POR04-SB1-02			
		POR04-SB2	POR04-SB2-01			
			POR04-SB2-02			
		POR04-SB3	POR04-SB3-01			Soil samples adjacent to the OWS immediately southwest of the hangar.
			POR04-SB3-02			
	GW	MW-POR04-01	MW-POR04-01-01	Yes	PFOS/PFOA	New well downgradient from PRLs 03 and 04 based on assumed groundwater flow direction.
5: Old Fire Department and Swale – Building 290	Soil	POR05-SB1	POR05-SB1-01	Yes	PFOS/PFOA	Soil sample immediately north and west-northwest of the old FD.
			POR05-SB1-02			
		POR05-SB2	POR05-SB2-01			
			POR05-SB2-02			
		POR05-SB3	POR05-SB3-01	Yes	PFOS/PFOA	Samples from the swale northwest of the building based on known release of AFFF. The sediment sample will be collected as a composite sample from the swale. The new well location is downgradient from PRL based on assumed groundwater flow direction.
			POR05-SB3-02			
	GW	MW-POR05-01	MW-POR05-01-01	Yes	PFOS/PFOA	
	Sediment	POR05-SD1	POR05-SD1-01	NA	PFOS/PFOA	
	Surface Water	POR05-SW1	POR05-SW1-01	NA	PFOS/PFOA	

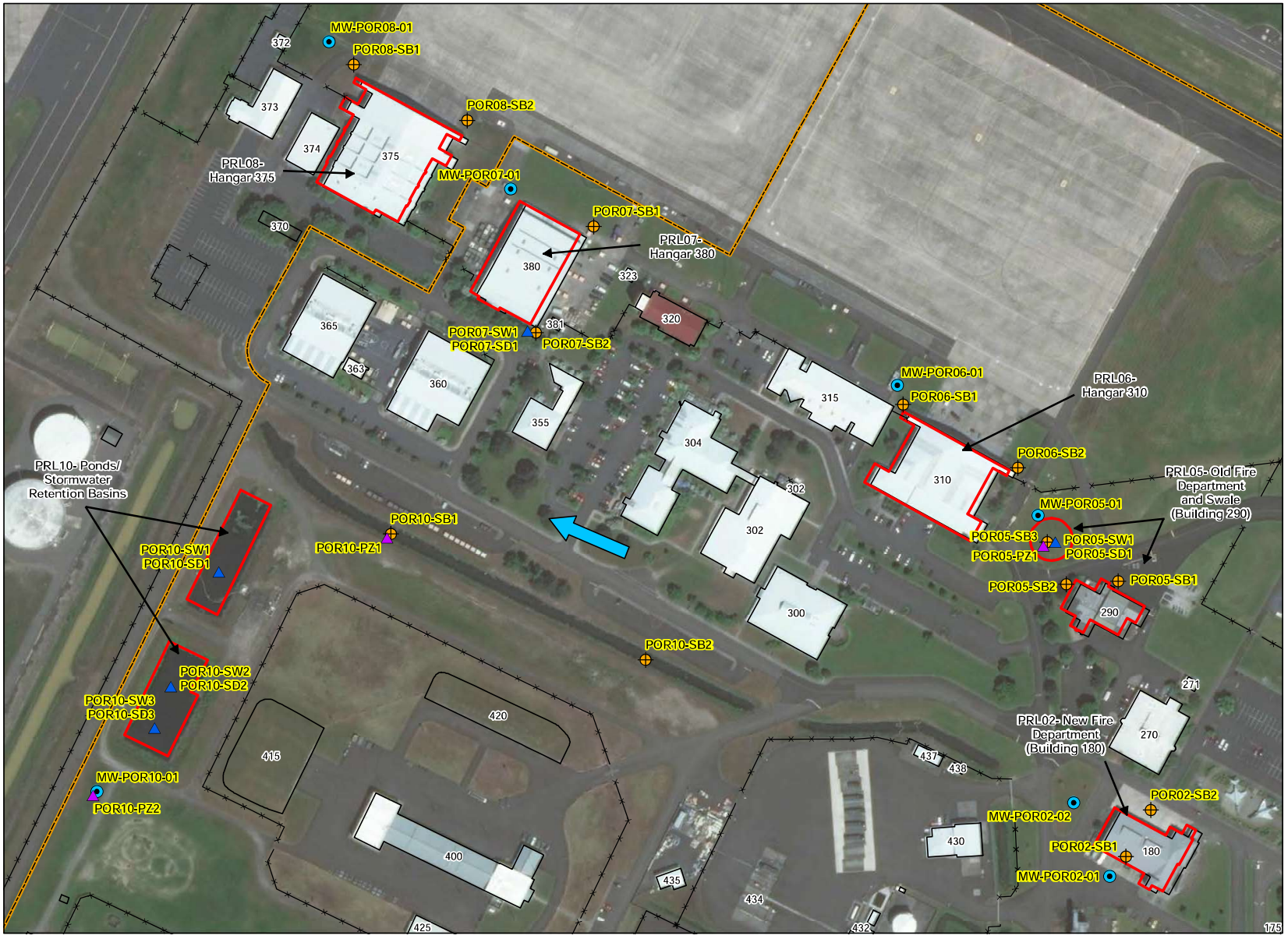
Table 6-1. Proposed Sample Locations and Analyses for Portland ANGB (continued)

PRL Number	Medium	Location Identifier	Sample Identifier[a]	Lithologic Log	Analysis[b]	Notes
6: Hangar 310	Soil	POR06-SB1	POR06-SB1-01	Yes	PFOS/PFOA	Samples will be collected from grassy areas northeast and northwest of the hangar where a release of AFFF was likely to migrate from the hangar.
			POR06-SB1-02			
		POR06-SB2	POR06-SB2-01			
			POR06-SB2-02			
	GW	MW-POR06-01	MW-POR06-01-01	Yes	PFOS/PFOA	New well in the grassy area downgradient from the PRL based on assumed groundwater flow direction.
7: Hangar 380	Soil	POR07-SB1	POR07-SB1-01	Yes	PFOS/PFOA	Samples will be collected from grassy areas northeast and southeast of the hangar. POR07-SB2 will be adjacent to the mechanical room.
			POR07-SB1-02			
		POR07-SB2	POR07-SB2-01			
			POR07-SB2-02			
	GW	MW-POR07-01	MW-POR07-01-01	Yes	PFOS/PFOA	New well in the grassy area downgradient from the PRL based on assumed groundwater flow direction; adjacent to the Base boundary.
	Sediment	POR07-SD1	POR07-SD1-01	NA	PFOS/PFOA	Collect samples from catch basin located outside mechanical room on the southeastern side of the building.
	Surface Water	POR07-SW1	POR07-SW1-01	NA	PFOS/PFOA	
8: Hangar 375	Soil	POR08-SB1	POR08-SB1-01	Yes	PFOS/PFOA	Samples will be collected from grassy areas northeast and northwest of the hangar where a release of AFFF was likely to migrate from the hangar.
			POR08-SB1-02			
		POR08-SB2	POR08-SB2-01			
			POR08-SB2-02			
	GW	MW-POR08-01	MW-POR08-01-01	Yes	PFOS/PFOA	New well in the grassy area downgradient from the PRL based on assumed groundwater flow direction.
10: Ponds/Storm Water Retention Basins	Soil	POR10-SB1	POR10-SB1-01	Yes	PFOS/PFOA	Stormwater ditch leading to retention ponds. There is a liner in the ditch from previous environmental work. Soil borings will be placed adjacent to the ditch to prevent damage to the liner. Based on stakeholder discussion, samples should be collected from above and below the liner.
			POR10-SB1-02			
		POR10-SB2	POR10-SB2-01	Yes	PFOS/PFOA	
			POR10-SB2-02			
	GW	MW-POR10-01	MW-POR10-01-01	Yes	PFOS/PFOA	New well in the grassy area along western Base boundary.
	Sediment	POR10-SD1	POR10-SD1-01	NA	PFOS/PFOA	Samples collected from northern pond adjacent to the outfall from the storm ditch. Assuming safe accessibility, sediment samples will be collected as composite samples within the ponds.
	Surface Water	POR10-SW1	POR10-SW1-01	NA	PFOS/PFOA	
	Sediment	POR10-SD2	POR10-SD2-01	NA	PFOS/PFOA	Samples collected from southern pond.
		POR10-SD3	POR10-SD3-01	NA	PFOS/PFOA	
	Surface Water	POR10-SW2	POR10-SW2-01	NA	PFOS/PFOA	
		POR10-SW3	POR10-SW3-01	NA	PFOS/PFOA	

Table 6-1. Proposed Sample Locations and Analyses for Portland ANGB (continued)

PRL Number	Medium	Location Identifier	Sample Identifier[a]	Lithologic Log	Analysis[b]	Notes
11: Former Site 7 Burn Pit	Soil	POR11-SB1	POR11-SB1-01	Yes	PFOS/PFOA	Samples will be collected from within the former burn pit as well as along the northern and western boundaries of the burn pit.
			POR11-SB1-02			
		POR11-SB2	POR11-SB2-01			
			POR11-SB2-02			
		POR11-SB3	POR11-SB3-01			
			POR11-SB3-02			
	GW	MW-POR11-01	MW-POR11-01-01	Yes	PFOS/PFOA	New well at the center of the former burn pit area. Will be collocated with POR11-SB1.

[a] Two samples will be collected per boring—one from 0 to 2 ft BGS, and the second from the interval immediately above the water table. Actual depth of the subsurface sample will be the 2-ft interval above groundwater table. At PRL 10, soil samples will be collected from immediately above and below the liner within the ditch.
[b] PFOS/PFOA is used generically in this Site Inspection Work Plan to include the following six 2012 third Unregulated Contaminant Monitoring Rule emerging contaminants: PFOS, PFOA, PFBS, perfluorononanoic acid, perfluoroheptanoic acid, and perfluorohexanesulfonate. All samples will be analyzed for PFOS/PFOA using U.S. Environmental Protection Agency, Method 537, revision 1.1.
Note: Groundwater sampling also will include monitoring of field parameters: water level, pH, temperature, conductivity, oxidation-reduction potential, dissolved oxygen, and turbidity.
AFFF = Aqueous film-forming foam.
ANGB = Air National Guard Base.
BGS = Below ground surface.
FD = Fire department.
GW = Groundwater.
MW = Monitoring well.
NA = Not applicable.
OWS = Oil/water separator.
PFBS = Perfluorobutane sulfonate.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.
PRL = Potential release location.
SB = Soil boring.
SD = Sediment.
SI = Site Inspection.
SW = Surface water.



LEGEND:

- Proposed Soil Boring
- Proposed Monitoring Well
- Proposed Surface Water/Sediment Sample
- Proposed Temporary Piezometer
- Potential Release Location (PRL)
- Installation Boundary*
- Building*
- Fence*
- Inferred Regional Groundwater Flow

POR02-SB1 Location Identifier

NOTES:

* Source: Common Installation Picture (CIP) geodatabase provided by ANG GeoBase on 07/26/2017.

1. Background Source: ESRI World Imagery (DigitalGlobe, 05/2017).
2. Potential temporary piezometer locations may be adjusted based on field conditions.
3. Permanent monitoring well locations may be adjusted once the groundwater flow is determined from the installed temporary piezometers.

0 50 100 200 Feet
0 20 40 80 Meters

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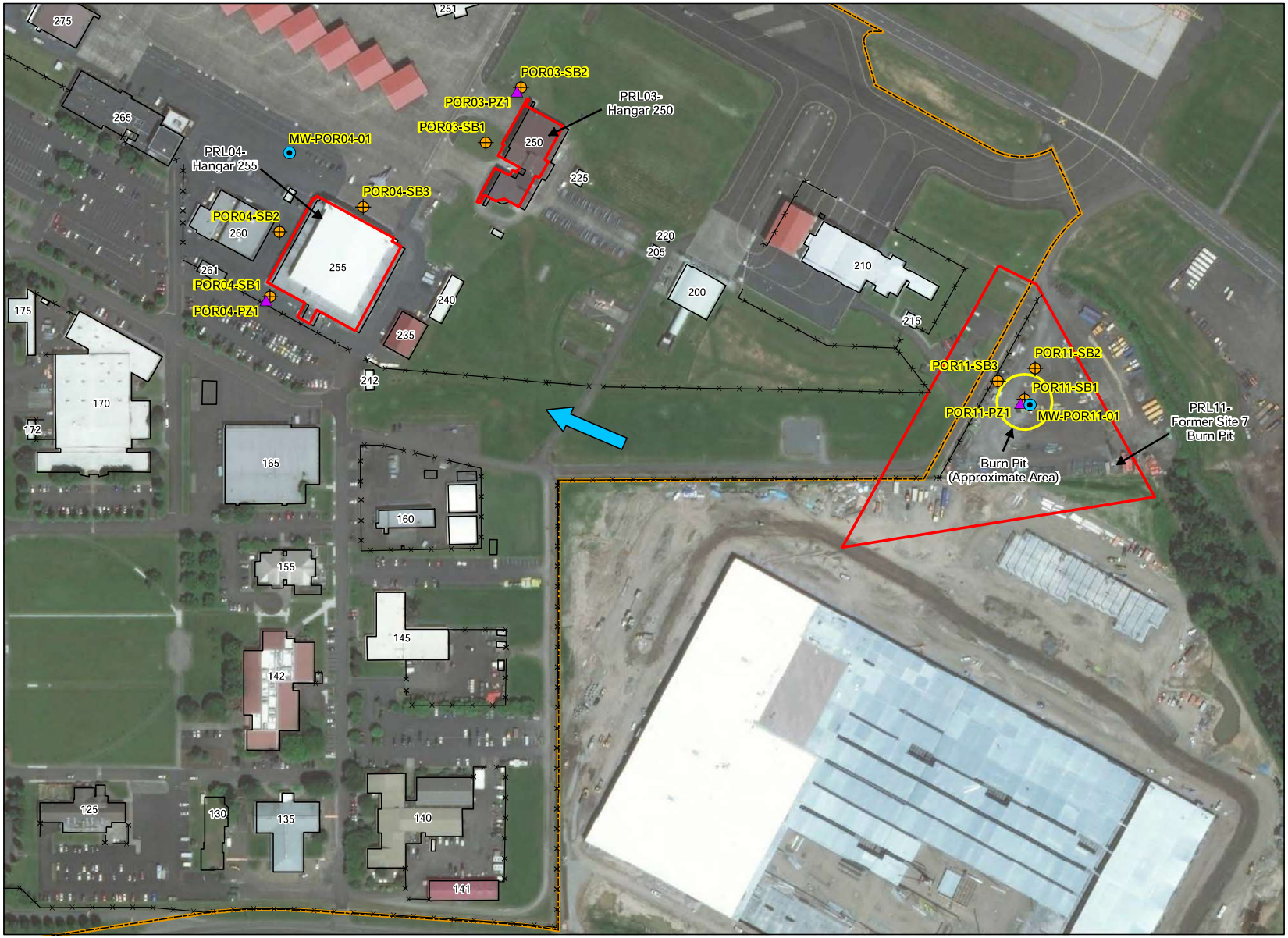
PROPOSED SAMPLE LOCATIONS AT BUILDING 180, BUILDING 290, HANGAR 310, HANGAR 380, HANGAR 375, AND PONDS/STORMWATER RETENTION BASINS (PRL 02, 05, 06, 07, 08, AND 10)

FIGURE: 6-1 | DATE: 4/4/2018

PROJECT: \827Projects\ANG Phase 3 SI for PFCs\z_GIS\Portland\Projects\SIWP\Figure 6-1 PRL 02 05 06 07 08 10 Proposed Locations_11x17.mxd



LEGEND:

- Proposed Soil Boring
- Proposed Monitoring Well
- Proposed Temporary Piezometer
- Potential Release Location (PRL)
- Site Feature
- Installation Boundary*
- Building*
- Fence*
- Inferred Regional Groundwater Flow

POR03-SB1 Location Identifier

NOTES:

* Source: Common Installation Picture (CIP) geodatabase provided by ANG GeoBase on 07/26/2017.

1. Background Source: ESRI World Imagery (DigitalGlobe, 05/2017).
2. Potential temporary piezometer locations may be adjusted based on field conditions.
3. Permanent monitoring well locations may be adjusted once the groundwater flow is determined from the installed temporary piezometers.

0 50 100 200 Feet

0 20 40 80 Meters

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PROPOSED SAMPLE LOCATIONS AT HANGAR 250, HANGAR 255, AND FORMER SITE 7 BURN PIT (PRL 03, 04, AND 11)

FIGURE: 6-2 | DATE: 4/4/2018

PROJECT: \827\Projects\ANG Phase 3 SI for PFCs\z_GIS\Portland\Projects\SIWP\Figure 6-2 PRL 03 04 11 Proposed Locations_11x17.mxd

Table 6-2. Quality Control Samples[a]

Matrix/Analytes	Number of Primary Samples	Number of Field Duplicates	Number of Field Blanks[b]	Number of Reagent Blanks	Number of Equipment Rinsate Blanks	Number of MS/ MSD	Total Number of Samples
Groundwater (PFOS/PFOA)	8	1	1/1	1	1	1/1	15
Soil (PFOS/PFOA)	42	4	0	0	4	2/2	54
Surface Water (PFOS/PFOA)	5	0	0	0	1	0	6
Sediment (PFOS/PFOA)	5	0	0	0	1	0	6

[a] Quality control sample counts are based upon the maximum potential number of primary samples and will be adjusted based upon final sample counts.
[b] One field blank will be collected from each distinct water source. This includes potable water, deionized water, etc.
MS = Matrix spike.
MSD = Matrix spike duplicate.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.

Table 6-3. Laboratory Method, Container Requirements, Preservation, and Sample Hold Times

Analyte[a]	Matrix	Method	Container(s) (number, size, and type per sample)	Preservation	Sample Holding Time
PFOS/PFOA	Water	EPA Method 537, revision 1.1	250-mL polypropylene with polypropylene cap	Cool to 4°C ±2°; Trizma preservative for aqueous samples with residual chlorine	14 days to extraction 28 days to analysis
	Solids	EPA Method 537 modified, revision 1.1	250-mL polypropylene with polypropylene cap	Cool to 4°C ±2°	28 days to extraction 28 days to analysis

[a] PFOS/PFOA is used generically in this Site Inspection Work Plan to include the following six 2012 third Unregulated Contaminant Monitoring Rule emerging contaminants: PFOS, PFOA, PFBS, perfluorononanoic acid, perfluoroheptanoic acid, and perfluorohexanesulfonate. All samples will be analyzed for PFOS/PFOA using EPA Method 537, revision 1.1.
Trizma preservative will only be used for the potable water sample.
EPA = U.S. Environmental Protection Agency.
PFBS = Perfluorobutane sulfonate.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.

Field duplicates for all media will be assigned sample identifiers identical to the primary sample with the letter 'D' at the end of the sample identifier.

Field blanks will be collected for each distinct water source (e.g., potable water, deionized [DI] water) used during the SI field activities and will be assigned sample identifiers beginning with the letters 'FB' followed by two digits sequentially assigned (i.e., the first field blank collected on the project will be given the sample identifier 'FB-01'; the second, 'FB-02'; etc.). The chain-of-custody (CoC) and field logbook will clearly identify the source of the water sampled (e.g., potable water source or DI water).

One reagent blank will be collected and analyzed for each project. At the laboratory, the reagent blank sample will be filled with reagent water and preservatives, sealed, and shipped to the sampling site along with an empty sample bottle (no preservatives). At the sampling site, the field technician must open the shipped field reagent blank and pour the preserved reagent water into the empty shipped sample bottle, seal it, and label this bottle as the field reagent blank. The bottle labeled field reagent blank will be shipped back to the laboratory along with the primary and QC samples.

Equipment rinsate blanks will be assigned sample identifiers beginning with the letters 'ER' followed by two digits sequentially assigned (i.e., the first equipment rinsate blank collected on the project will be given the sample identifier 'ER-01'; the second, 'ER-02'; etc.). The field logbook will clearly identify the sample(s) collected with the reusable equipment immediately prior and/or immediately following collection of the equipment rinsate sample, and the CoC will clearly identify the medium with which the equipment rinsate is associated (e.g., 'groundwater rinsate' when the equipment rinsate was collected from groundwater sampling equipment, or 'soil rinsate' when the equipment rinsate was collected from direct-push technology [DPT] soil sampling equipment, etc.).

Additional volumes sent for MS/MSD analyses will be submitted under the same sample identifier as the primary sample with a notation on the CoC that additional volumes were submitted for MS and MSD analyses.

6.2.6 Analytical Suite

All environmental samples will be analyzed by EPA Method 537 revision 1.1, in accordance with the 2012 Air Force Interim Guidance (USAF 2012) and the *U.S. Department of Defense Quality Systems Manual for Environmental Laboratories*, Version 5.1 (DoD 2017) for the six chemicals identified in UCMR3, specifically:

- PFOS,
- PFOA,
- PFNA,
- PFHxS,
- PFHpA, and
- PFBS.

Further analytical details are provided in the UFP-QAPP (Appendix A).

6.2.7 Health and Safety

Due to the possible presence of volatile organic compounds (VOCs) (primarily benzene, toluene, ethylbenzene, xylenes, and total petroleum hydrocarbons) in soil and groundwater at Portland ANGB, a photoionization detector (PID) will be used to monitor for VOCs in the breathing zone during soil boring and well installation activities. The intended use of the data is to identify the presence or absence of

contaminants in the breathing zone during site activities. All PID readings will be recorded in a bound field logbook.

PIDs will be verified daily according to the manufacturer's instructions. PIDs will be calibrated daily with a gas of known concentration. All daily calibration information will be recorded in the Measure and Test Equipment logbook. PID action levels for drilling and groundwater sampling activities are provided in the SSHP (Appendix B).

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7.0 FIELD TECHNICAL PROCEDURES

Leidos has developed Standard Operating Procedures (SOPs) for fieldwork that will be used during the project. The applicable field technical procedures, listed on Worksheet #21 of the UFP-QAPP (Appendix A), are accessible by Leidos employees on the Leidos internal QA website and will be maintained onsite by the Leidos FM, along with a copy of this WP. Manufacturers' operating and calibration procedures for monitoring and measuring instruments also will be available onsite for use by the field team.

7.1 SAMPLE COLLECTION

Because PFOS/PFOA are found in numerous everyday items, the following special precautions will be taken during all PFOS/PFOA sampling activities:

- No use of Teflon®-containing materials (i.e., Teflon® tubing, bailers, tape, or plumbing paste);
- No Tyvek® clothing, and clothes treated with stain- or rain-resistant coatings will be avoided or required to have gone through several washings;
- No waterproof field notebooks;
- No Post-It® Notes handled during preparations for sampling or brought onsite;
- No fast food wrappers, disposable cups, or microwave popcorn brought onsite during sampling;
- Hands washed after handing above-mentioned items and prior to any sampling activities;
- No chemical (blue) ice packs allowed; and
- Nitrile gloves will be worn during all sample collection activities.

Additional field sampling protocols to avoid cross-contamination during sampling for PFOS/PFOA are included as Enclosure 3 of the Department of Navy's December 2015 *Memorandum – Testing for Perfluorochemicals (PFCs) in Drinking Water* (Navy 2015). A copy of this sampling protocol will be included in Appendix C of this SI WP.

7.1.1 Underground Utilities Location

All sampling locations within 25 ft of a known hazardous utility (e.g., gas or electric) will be cleared for utilities via hand auger or soft-dig techniques. If asphalt or concrete is present in those sample locations, a coring drill or road saw will be utilized to cut the surface cap to allow utility clearance to proceed. Hand auger or soft-dig techniques will be used to clear the proposed borehole location to a diameter at least 4 in. greater than the outside diameter of the bit used to drill the monitoring well to a depth of 5 ft. Soil cuttings from the hand auger or soft-dig techniques will be screened by the onsite geologist. Surface soil grab samples will be collected using the hand auger from the 0- to 2-ft BGS soil interval and remaining soil and all cuttings will be contained, and a cone or temporary cap will be placed over the borehole until the drill rig can be mobilized.

7.1.2 Soil Sampling by Hand Auger and/or Direct-Push Technology

Sample locations have been biased toward known or likely discharge or spill locations. Additional sample locations include grassy areas around doorways, just off the edge of garage entrances, along taxiways, near AFFF hydrants, near degraded macadam in front of service building and hangars, and along interior floor drains where seams or breaks are found.

Leidos will collect two soil samples per boring for PFOS/PFOA analyses. Borings will be advanced using a combination of hand auger and track-mounted direct-push drilling system. Hand auger samples will be collected from the top 2 ft BGS within grassy or uncovered areas. Direct-push borings will continue to refusal, or a maximum of 15 ft BGS. Where a sample location is determined to be valuable under flooring, near cracks, or in drains near AFFF storage, use, or release areas, Leidos will first core through the floor at an appropriate diameter and then advance a hand auger and/or DPT coring system.

All soil sampling activities will be overseen by a Leidos scientist or engineer experienced with drilling and sampling. Each soil core will be logged for lithology in accordance with the ANG Investigation Guidance (ANG 2009) and Leidos SOPs. During the advancement of the soil borings, continuous soil samples will be collected, screened with a PID, and visually examined for evidence of potentially contaminated areas or zones. Two samples will be collected from each boring—one from 0 to 2 ft BGS, and one from the interval immediately above the water table. At PRL 10, soil samples will be collected from immediately above and below the liner within the ditch. If refusal is encountered prior to the water table, a soil sample will be collected immediately above refusal. All soil boring locations will be mapped with a handheld digital GPS device with sub-meter accuracy prior to demobilization.

At the completion of sampling, each borehole will be abandoned with bentonite to seal off the potential contaminant migration pathway to groundwater. The ground surface will be restored to surrounding conditions.

7.1.3 Groundwater Sampling Methods

A PID will be used to monitor the well casing headspace during groundwater sampling activities. Any sample with a high PID reading will be noted on the CoC form. This information may be important to the laboratory because high VOC concentrations will interfere with the PFOS/PFOA analysis and may require a higher dilution factor. Providing this information to the laboratory ahead of time will enable them to run the sample at multiple dilutions within the holding time. Otherwise, the laboratory may not be able to re-analyze within the holding time.

7.1.3.1 Water level measurements

Prior to sampling any permanent groundwater monitoring well, the depth to water (from top of casing) will be measured and recorded. Following completion of sampling, the total depth (from top of casing) will be measured and recorded.

All depth measurements will be recorded in the field logbook to the nearest 0.01 ft.

7.1.3.2 Monitoring well purging and sampling

Groundwater sampling will be conducted using low-flow techniques in accordance with the ANG Investigation Guidance (ANG 2009). Required sampling equipment includes a peristaltic or submersible pump, polypropylene tubing, a flow-through cell, and a water quality meter capable of monitoring pH, temperature, specific conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and

turbidity. To avoid the potential for cross-contamination, all pumps and other required equipment will be free of PFOS/PFOA-containing components.

Wells are generally sampled from "clean to dirty" in order of increasing contaminant levels. However, PFOS/PFOA sampling data are not available for proposed monitoring wells. Therefore, until additional sampling data are available, wells will be sampled based on their location in an order that is most efficient for field personnel.

Following water level measurements, the sampling pump will be placed within the well at the estimated midpoint of the screened interval. Purging will be conducted at a low-flow rate to remove stagnant water within the well and ensure that the groundwater sample collected is representative of the surrounding aquifer. One of the goals of low-flow sampling is to minimize the drawdown in the water column within the well during pumping. If the water level is observed to be falling, the pumping rate will be decreased to the extent possible. If the well exhibits slow recharge and cannot sustain even low-flow pumping, the well will be purged until dry, allowed to recharge, and then sampled.

During purging, water quality measurements will be recorded in the field logbook at intervals of 3 to 5 min until specific parameters have stabilized for three consecutive readings as follows:

- pH ± 0.1 standard unit.
- Temperature ± 1°C.
- Conductivity (ms/cm) ± 10%.
- ORP ± 10 mV.
- DO (mg/L) ± 10%.
- Turbidity ± 10% and <50 nephelometric turbidity units (NTUs). Where the turbidity reading is greater than 50 NTUs, if the turbidity measurement has not varied more than 10% over three consecutive readings, the turbidity parameter will be considered stabilized.

Groundwater samples will be collected for analysis of PFOS/PFOAs (i.e., six UCMR3 chemicals).

7.1.4 Sediment and Surface Water Sampling Methods

Sediment and surface water samples will be collected from PRLs where sediment and surface water media are present (e.g., stormwater outfalls, stormwater detention ponds).

7.1.4.1 Sediment samples

Sediment samples will be collected directly from the selected location at 0.5 to 1 ft BGS using decontaminated stainless steel sampling trowels, a hand auger, or a dredge. All sediment sample locations will be mapped with a handheld digital GPS device with sub-meter accuracy prior to demobilization.

7.1.4.2 Surface water samples

Surface water samples will be collected from ambient flow prior to sediment sample collection to avoid sediment sampling-induced turbidity. Surface water samples will be collected from the upper portion of the water column directly from the selected location by one of the following methods:

- Peristaltic pump with dedicated tubing.

- High-density polyethylene/low-density polyethylene (HDPE/LDPE) dedicated/disposable bailer with HDPE/LDPE check ball (no Teflon®).

- Stainless steel reusable cup/scoop/dipper decontaminated after each use.

- Dedicated HDPE/LDPE container, such as a laboratory bottle without preservative. Submerge the container just below the water surface to fill, and then transfer the collected water to the laboratory bottle with preservative.

All surface water sample locations will be mapped with a handheld digital GPS device with sub-meter accuracy prior to demobilization.

7.2 WELL CONSTRUCTION METHODS

7.2.1 Temporary Piezometers

Temporary piezometers will be installed for the purpose of determining local groundwater flow only. No samples will be collected from the temporary piezometers in accordance with the Statement of Objectives (NGB 2017). Temporary piezometer borings will be advanced using DPT to approximately 7 ft below the first water-bearing zone. The diameter of the boring will be such to allow for a 1-in.-diameter screen and casing to be installed. The well casing and screen materials used for construction of the temporary piezometers will be composed of new, pre-cleaned, nominal 1-in.-diameter, Schedule 40 polyvinyl chloride (PVC). The slot openings for the screen will equal 0.010 in. The well screen for the piezometers is anticipated to be 10 ft in length. The screen used for the piezometer will be installed such that the top of the screen is at or below the water table and the bottom of the screen cap is placed no more than 1 ft above the bottom of the drilled borehole. The temporary piezometers will not be grouted to the surface because the piezometers will be abandoned after water level measurements are taken. Purging will not be required.

7.2.2 Groundwater Well Construction

Boreholes will be advanced with a DPT, hollow-stem auger drilling rig, or air-rotary percussion drilling rig, as required, to approximately 7 ft below the first water-bearing zone or to a depth not to exceed 20 ft BGS. The diameter of the boring will be such to allow for a 2-in.-diameter well to be installed and still allow sufficient annular space to add the filter pack, bentonite seal, and annular grout.

Wells will be installed with flush-mount completions. Surface completions will meet Base requirements. The borehole will be drilled to a depth such that the screen intercepts the water table at the site. The well casing will extend to a height of approximately 0.25 ft below the adjacent ground surface. The top of the well casing will be level so that the difference in elevation between the highest and lowest points on the top of the casing is less than or equal to 0.2 in. The wells will be composed of new, pre-cleaned 2-in.-diameter, schedule 40 PVC with 10-ft screened sections and a slot size of 0.010 in. The well screen will be placed such that approximately 7 ft is below the water table and 3 ft is above.

Six in. of sand will be placed under the bottom of the well screen to provide a firm footing. The screen used for the monitoring well will be installed such that the bottom of the screen cap is placed no more than 1 ft above the bottom of the drilled borehole. Granular filter pack material used for the monitoring well will be placed around the well screen by pouring the sand in the annulus between the screen and the borehole. The granular filter pack material (#5 or #7 sand) will extend from the bottom of the borehole to approximately 2 ft above the top of the well screen depending on final well construction depth. Sand placement will be

continuously measured using a weighted tape. In the event that the filter sand begins bridging in the annular space, the filter pack will be emplaced using a tremie pipe. The filter pack will extend from the bottom of the borehole to a minimum of 2 ft above the top of the well screen (if possible based on total depth of the well). The final depth to the top of the filter pack will be measured directly with a weighted tape and recorded on the associated well construction diagram.

Compressed, non-coated bentonite pellets will be poured into the annular space above the sand pack to form a seal. Pellets will be emplaced to a thickness of at least 2 ft without allowance for swelling during hydration (if possible based on the total depth of the well). If necessary, the bentonite pellets will be hydrated with 5 to 10 gal of approved potable and PFOS/PFOA-free water. The remainder of the borehole annulus will be sealed with a bentonite grout mixture (approximately 2%) emplaced via tremie pipe or direct installment. All materials used to construct the monitoring wells will be documented by the field geologist.

After the grout has been allowed to cure for a minimum of 24 hr, the wells will then be fitted with flush-mounted manhole covers set in concrete. The top of the wells will be sealed with a locking plug. The concrete surrounding the manhole cover will be completed with a slight slope to prevent pooled water and to also minimize potential damage from snow-plowing and related site activities. Manhole covers will be at least 8 in. in diameter and will include bolts and gaskets to secure the lid and prevent surface water from entering the well vault. All wells will be labeled with a paint pen.

For wells installed in locations prone to ponded water and/or flooding, wells will be finished with either a standard 3-ft protective steel casing or a stainless-steel roadbox.

7.2.3 Monitoring Well Development

Well development will be conducted in accordance with the ANG Investigation Guidance (ANG 2009). The development of monitoring wells installed during the project will be initiated no sooner than 24 hr after placement of annular grout to the ground surface. The monitoring wells installed during this project will be developed using the pump-and-surge method with a submersible pump and tubing. Well identification numbers will be applied to each well lid using a paint pen or marker. Wells with sufficient flow will be developed until water quality parameters (i.e., pH, temperature, conductivity, DO, ORP, and turbidity) are stable, as defined below. Wells without sufficient flow will be developed by alternative methods, such as with a surge block, or purged dry and allowed to recover. Water quality parameter stabilization is defined as three consecutive readings within the following ranges:

- pH ± 0.1 standard units.
- Temperature ± 1°C.
- Conductivity (ms/cm) ± 10%.
- DO (mg/L) ± 10%.
- ORP ± 10 mV.
- Turbidity ± 10% or <50 NTUs. Where the turbidity reading is greater than 50 NTUs, if the turbidity measurement has not varied over three consecutive readings and all other parameters have stabilized, the turbidity parameter will be considered satisfied.

Newly installed monitoring wells will be allowed to equilibrate following development. Water level measurements will be taken prior to purging, and the wells sampled as described in Sections 7.1.3.1 and 7.1.3.2.

7.3 BOREHOLE ABANDONMENT

Soil borings and temporary piezometers will be abandoned in accordance with state regulations and ANG guidance. Boreholes will be abandoned immediately following the completion of sampling, water level measurements, and surveying to remove the potential contaminant migration pathway to groundwater.

Boreholes will be abandoned by a licensed driller. After the temporary PVC casing/screen is pulled from the hole, the remaining soil collected by the DPT rig will be containerized and appropriately disposed of as investigation-derived waste (IDW). The borehole will be filled with bentonite to within 6 in. of ground surface. The final 6 in. of each boring will be completed to match the surrounding ground cover.

7.4 SURVEY OF SAMPLE POINTS

All newly installed permanent monitoring wells will be surveyed by a professional licensed surveyor to determine location coordinates and elevations with an accuracy of ±0.1 ft horizontally and ±0.01 ft vertically. Vertical elevations will be referenced to the North American Vertical Datum of 1988. Horizontal positions determined by professional land survey based on National Spatial Reference System control points shall be determined with Third Order methods using a minimum of two reference points and reported reference to: (1) the appropriate State Plane Coordinate System, North American Datum 1983, local zone, U.S. Survey Feet; and (2) decimal degrees with World Geodetic System of 1984 (WGS84) as the earth datum. All subsequent geospatial data will be developed in the appropriate zone of the Universal Transverse Mercator Coordinate System, with WGS84 as the datum, and the meter unit of measure.

Coordinates for soil borings, temporary piezometers, surface water sample locations, and sediment sample locations will be obtained using GPS. Horizontal GPS coordinates will be collected in decimal degrees reported to seven decimal points, with WGS84 as the earth datum. In the event there is too much tree canopy for the GPS to work properly, distances will be measured from three reference points with known coordinates or recorded using the position offset feature of the GPS unit.

7.5 LOGS AND WELL INSTALLATION DIAGRAMS

7.5.1 Borehole Logs

A lithographic log form will be completed for each soil boring. Lithologic descriptions will follow the Unified Soil Classification System (American Society for Testing and Materials D2487 or D2488, depending on use of data). In addition, a narrative of drilling activities will be documented in the logbook. This narrative will include the sequence of all activities, descriptions of drilling equipment, quantities of materials used, and descriptions of any problems encountered.

7.5.2 Well Installation Diagrams

The newly installed monitoring well(s) and piezometers will be graphically depicted in an as-built well construction diagram, which will denote, by depth from the ground surface, the following information:

- Location of the borehole bottom and borehole diameter(s);
- Location of the well screen;

- Length of the well screen;
- Position of well screen relative to top of the water table;
- Location of any joints;
- Location of any centralizers;
- Location of the granular filter pack;
- Location of the bentonite seal;
- Location of the grout seal; and
- Height of riser (stick-up), without cap/plug, above the ground surface (if applicable).

Additional information to be described on each as-built well construction diagram will include the following:

- Actual quantity and composition of the grout seal, bentonite seal, and granular filter pack used for construction of the monitoring well;

- Screen slot size in inches, slot configuration, outside diameter, nominal inside diameter, schedule/thickness, composition, and manufacturer;

- Type of material located between the bottom of the borehole and the bottom of the screen;

- Outside diameter, nominal inside diameter, schedule/thickness, composition, and manufacturer of the well casing;

- Joint design and composition;

- Composition and nominal inside diameter of the protective casing;

- Dates and times for the start and completion of monitoring well installation; and

- Definition of any special abbreviations used at the first occurrence of their usage.

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8.0 EQUIPMENT DECONTAMINATION PROCEDURES

To ensure that chemical analysis results are reflective of the actual concentrations at sampling locations, equipment used in sampling activities must be properly cleaned and decontaminated. Therefore, equipment used to conduct sampling activities will be decontaminated before sampling activities begin, between sampling activities, and after sampling activities have been completed. Information associated with the decontamination procedures to be used during the SI activities is summarized below.

8.1 SAMPLING EQUIPMENT

All sampling equipment, including stainless steel bowls and stainless steel sampling tools (e.g., spoons and auger buckets), will be washed, scrubbed with a laboratory-grade, non-phosphate detergent (i.e., Liquinox®), and rinsed with potable water first. Approved DI water will be used for all final rinses. The following procedure will be used:

1. Wash and scrub with, Liquinox®.
2. Rinse with potable water.
3. Rinse with DI, analyte-free water.
4. Air dry, as possible.

8.2 DRILLING EQUIPMENT

Decontamination of drilling equipment (e.g., down-hole drill rig equipment) will be performed prior to use and between borings. Equipment will be moved to a decontamination area where the equipment will be pressure washed or hand washed with potable water. Where DPT equipment is used, DPT rods will be decontaminated in the same manner as sampling equipment. Wastewater generated from decontamination activities will be handled as IDW, as outlined in Chapter 9.0, IDW Management.

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9.0 INVESTIGATION-DERIVED WASTE MANAGEMENT

All field activities will be conducted to minimize the volume of IDW generated throughout the project. Solid IDW will be generated during drilling activities, while liquid IDW will be generated through drilling, decontamination, well development, and well purging activities. All IDW will be containerized and properly disposed of in accordance with Policy CEV 05-1, *Policy on Air National Guard Investigation and Remediation Derived Waste (IDW/RDW) Management* (ANG 2005). Each container of IDW (e.g., drum or tank) will be labeled with the type and source of material contained within, the date, and a Leidos point of contact (name and telephone number). IDW drum(s) will be properly stored on a pallet at a central accumulation point designated by the Base EM. Waste characterization (e.g., profiling) will be based upon the results of environmental sampling and site process knowledge. Leidos will provide the waste characterization profile for ANG review and will coordinate offsite transportation and disposal, as required. ANG will approve the identified disposal facility, sign the waste characterization profile (if applicable), and sign all waste manifests. Used personal protective equipment (i.e., nitrile gloves) and disposable equipment (e.g., paper towels and tubing) will be decontaminated to the extent possible, placed into plastic garbage bags, and disposed of as municipal waste.

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10.0 DATA REQUIREMENTS

10.1 ENVIRONMENTAL RESOURCES PROGRAM INFORMATION MANAGEMENT SYSTEM

The Environmental Resources Program Information Management System (ERPIMS) is the U.S. Air Force's system for validation and management of data from environmental projects at all Air Force Bases. These data contain analytical chemistry samples, tests, and results, as well as hydrogeological information, site/location descriptions, and monitoring well characteristics. In September 2010, NGB issued a policy memorandum requiring all ANG environmental restoration sampling data to be submitted to the ERPIMS database beginning October 1, 2010 (ANG 2010b). This includes, but is not limited to, data from all environmental media (soil; groundwater, including water level and field parameter data; sediment; and surface water), lithologic data, and well construction data. Leidos will ensure that the analytical laboratory subcontracted for this field effort provides appropriate data for ERPIMS inclusion and will provide the required deliverable within 70 days of sampling in accordance with ANG guidance. If the goal of 70 days will not be met for any reason, Leidos will inform the ANG Program Manager and provide the rationale for delay.

10.2 GEOSPATIAL DATA DELIVERABLES

Leidos will comply with the requirements of Policy A7O 14-01, *Requirements for Geospatial Data Deliverables* (ANG 2014), for digital data collected during field activities and submitted to ANG. Environmental sample information will be submitted for inclusion into the Geographical Information System database per NGB Operations Division Restoration Branch Policy A7O 14-01 and to provide location requirements necessary for associated analytical results and field measurements to be included in ERPIMS.

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11.0 PROJECT SCHEDULES AND DELIVERABLES

Table 11-1 summarizes the major elements of the SI and the anticipated dates of completion. A copy of the current project schedule is provided to ANG in each monthly progress report.

Table 11-1. Project Schedule for Major Elements of the SI

Task Title	Completion Date
SI Work Plan	April 2018
Draft	November 2017
Draft Final	January 2018
Final	April 2018
SI Field Activities	May/June 2018
SI Report	December 2018
Draft	August 2018
Draft Final	September 2018
Final	December 2018

SI = Site inspection.

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12.0 REPORTING

12.1 PURPOSE

The SI findings will be documented in an SI Report. The purpose of the SI Report is to interpret the field and analytical results and to provide sufficient information to support a defensible NFA decision; provide general recommendations for future investigation activities; or an interim response action, if appropriate.

The report will document any deviations from this SI WP, present the rationale for sample locations, report field measurements, summarize investigation findings, and provide data interpretation. The report also will include soil boring logs, well completion logs, analytical data validation results, and electronic Geographic Information System data, as necessary.

12.2 FORMAT

The structure of the SI Report will follow the guidance presented in Appendix A of ANG's Investigation Guidance (ANG 2009).

12.3 DELIVERABLES

Draft, draft final, and final versions of the SI Report will be prepared. A draft report will be submitted to ANG, the Base EM, and the oversight contractor for review. Comments will be resolved, and a draft final report will be submitted for regulatory review. A final report that incorporates all ANG-approved comments will be submitted to ANG, the Base EM, and the oversight contractor. The final report will be available in the Administrative Record at http://afcec.publicadminrecord.us.af.mil/ Search.aspx.

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13.0 REFERENCES

ANG (Air National Guard) 2005. Memorandum for ANG/CEV, CEV 05-1. *Policy on Air National Guard Investigation and Remediation Derived Waste (IDW/RDW) Management*, March.

ANG 2009 *Air National Guard Environmental Restoration Program Investigation Guidance*, Air National Guard Readiness Center, Andrews Air Force Base, Maryland, Final, September.

ANG 2010a. 142 FW History. http://www.142fw.ang.af.mil/. October.

ANG 2010b. *Environmental Resources Program Information Management System (ERPIMS)*, Policy A7O 10-01, September.

ANG 2014. *Requirements for Geospatial Data Deliverables*, Policy A7O 09-01, December.

BB&E 2016. *Final Perfluorinated Compounds Preliminary Assessment Report, Portland Air National Guard, 142nd Fighter Wing, Portland, Oregon.* January.

BEM and Arcadis (BEM Systems & ARCADIS U.S.) 2013. *Phase II Environmental Base Line Survey (EBS) Site Assessment Work Plan, 142nd Fighter Wing, Oregon Air National Guard.* February.

CH2M Hill 2006. *Final Environmental Baseline Survey, 142nd Fighter Wing, Oregon Air National Guard*. April.

DoD (U.S. Department of Defense) 2012. *U.S. Department of Defense Manual for Defense Environmental Restoration Program Management*, Number 4715.20, March.

DoD 2017. *U.S. Department of Defense Quality Systems Manual for Environmental Laboratories*, Version 5.1.

DOI (U.S. Department of the Interior) 1963. *The Geology of Portland, Oregon and Adjacent Areas. Geological Survey Bulletin.* Donald E. Trimble.

EPA (U.S. Environmental Protection Agency) 1998. *RCRA, Superfund, and EPCRA Hotline Training Module – Introduction to Applicable or Relevant and Appropriate Requirements*, Updated February 1998, EPA540-R-98-020, Office of Solid Waste and Emergency Response Directive 9205.5-10A, Washington, DC, June.

ERM (Environmental Resources Management) 2001. *Installation Restoration Program Final Remedial Investigation Report, Volume I, Text, Figures, and Tables.* January.

ERM (ERM-West, Inc.) 2013. *Final Site Investigation Work Plan, 142nd Fighter Wing, Oregon Air National Guard*. March.

HMTC (Hazardous Materials Technical Center) 1987. *Installation Restoration Program Phase I Records Search for Portland International Airport (ANG) Portland, Oregon and North Bend Air National Guard Station, North Bend, Oregon.* September.

Leidos 2017a. *Quality Control Plan for Fiscal Year 2017 Phase III Regional Site Inspections for Perfluorinated Compounds at Multiple Air National Guard Installations,* Final, August.

Leidos 2017b. *Meeting Minutes, Installation Kickoff Meeting, Portland ANGB, Portland, Oregon*. October.

Navy (U.S. Department of the Navy) 2015. *Memorandum - Testing for Perfluorochemicals (PFOS/PFOA) in Drinking Water*, Available online at: <http://www.secnav.navy.mil/eie/Documents/15-12-24-BUMED-PFC-Memo-Signed-w-Enclosures.pdf>, December.

NGB (National Guard Bureau) 2017. *Statement of Objectives for FY17 Phase III Regional Site Inspections for Perfluorinated Compounds at Multiple Air National Guard Installations*, Project Number ANGH20177151, January 2017; Revised February.

USA.com. 2017. Multnomah County, OR Weather. Available online at http://www.usa.com/portland-or-weather.htm

USAF (U.S. Air Force) 2012. Interim Air Force guidance on sampling and response actions for perfluorinated compounds at active and BRAC Installations, Headquarters/A7C, Washington, D.C., September.

USAF 2016. SAF/IE Policy on Perfluorinated Compounds (PFCs) of Concern*, August 11.*

USFWS (U.S. Fish and Wildlife Service) 2017a. Environmental Conservation Online System. Multnomah County, Oregon. Retrieved from https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=41051 November 14.

USFWS 2017b. National Wetlands Inventory, Wetland Mapper. Retrieved from https://www.fws.gov/wetlands/data/Mapper.html. November 14.

APPENDIX A

UNIFORM FEDERAL POLICY-QUALITY ASSURANCE PROJECT PLAN

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FINAL

UNIFORM FEDERAL POLICY QUALITY ASSURANCE PROJECT PLAN FOR FISCAL YEAR 2017 PHASE III REGIONAL SITE INSPECTIONS FOR PERFLUOROOCTANE SULFONATE/ PERFLUOROOCTANOIC ACID AT MULTIPLE AIR NATIONAL GUARD INSTALLATIONS

National Guard Bureau
Environmental Restoration Program
Joint Base Andrews, Maryland

January 2018

17-050(E)/112217

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FINAL

UNIFORM FEDERAL POLICY QUALITY ASSURANCE PROJECT PLAN FOR FISCAL YEAR 2017 PHASE III REGIONAL SITE INSPECTIONS FOR PERFLUOROOCTANE SULFONATE/ PERFLUOROOCTANOIC ACID AT MULTIPLE AIR NATIONAL GUARD INSTALLATIONS

January 2018

Contract Number W9133L-14-D-0007
Task Order Number 0011

Prepared for

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ACRONYMS

AFFF	aqueous film-forming foam
ANG	Air National Guard
CAS	Chemical Abstracts Service
CCV	continuing calibration verification
CoC	chain-of-custody
DL	detection limit
DoD	U.S. Department of Defense
DQA	data quality assessment
DQO	data quality objective
EDD	electronic data deliverable
EDT	Eastern Daylight Time
ELAP	Environmental Laboratory Accreditation Program
EM	Environmental Manager
EPA	U.S. Environmental Protection Agency
ERPIMS	Environmental Resources Program Information Management System
ESE	Environmental Science and Engineering
FTP	Field Technical Procedure
FY17	Fiscal Year 2017
HAZWOPER	Hazardous Waste Operations and Emergency Response
HDPE	high-density polyethylene
IAP	International Airport
ICAL	initial calibration
ICV	initial calibration verification
ISC	instrument sensitivity check
ITR	Independent Technical Review
LC/MS/MS	liquid chromatography/tandem mass spectrometry
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOD	limit of detection
LOQ	limit of quantitation
M.B.A.	Master of Business Administration
M.S.	Master of Science
MPR	Monthly Progress Report
MS	matrix spike
MSD	matrix spike duplicate
N/A	not applicable
NGB	National Guard Bureau
NGB/A4OR	National Guard Bureau Operations Division Restoration Branch
OJT	on-the-job
P.E.	Professional Engineer
P.G.	Professional Geologist
PA	preliminary assessment
PDF	portable document file
PFBS	perfluorobutane sulfonate
PFC	perfluorinated compound
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PM	Project Manager

PMP	Project Management Professional
POC	point of contact
PRL	potential release location
QA	quality assurance
QC	quality control
QCP	Quality Control Plan
QSM	Quality Systems Manual
RPD	relative percent difference
SDG	sample delivery group
SI	site inspection
SOO	Statement of Objectives
SOP	Standard Operating Procedure
SSHP	Site Safety and Health Plan
TBD	to be determined
TO	task order
UCMR3	third Unregulated Contaminant Monitoring Rule
UFP-QAPP	Uniform Federal Policy-Quality Assurance Project Plan
USAF	U.S. Air Force
UST	underground storage tank
WP	Work Plan

EXECUTIVE SUMMARY

Leidos has been tasked by the Air National Guard (ANG) to conduct site inspections (SIs) for perfluorinated compounds, herein referred to as perfluorooctane sulfonate/perfluorooctanoic acid (PFOS/PFOA), at multiple ANG Installations. The project scopes were outlined in the *Statement of Objectives for FY17 Phase III Regional Site Inspections for Perfluorinated Compounds at Multiple Air National Guard Installations*, Project Number ANGH20177151 (NGB 2017). Project management and quality control (QC) procedures are documented in the *Quality Control Plan for Fiscal Year 2017 Phase III Regional Site Inspections for Perfluorinated Compounds at Multiple Air National Guard Installations* (Leidos 2017).

This Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP) details the investigative approach; provides the rationale for planned investigation activities; establishes the methods and procedures used in the investigation; identifies applicable QC criteria and quality assurance (QA) protocols; and documents the project organization, communication pathways, and schedule. The primary goal of this UFP-QAPP is to define procedures that will ensure the quality and integrity of the samples, accuracy and precision of the analyses, representativeness of the results, and completeness of the information collected during the SI. All data quality objectives and procedures associated with sample collection, laboratory analysis, sample custody, initial and continuing instrument/equipment calibration, internal QA checks, performance and system audits, preventive maintenance and scheduling, corrective action, and QA reports to management applicable to this project are described in this document.

The Installations included in the Phase III Regional SIs contract are listed in Table ES-1. Details pertaining to specific Installations are provided in Installation-specific SI Work Plans (WPs) tailored to the specific Installation. This UFP-QAPP is an attachment to each Installation-specific SI WP. Therefore, site-specific details are located in the SI WP, and this UFP-QAPP refers the reader to the SI WP for details.

Activities described in the SI WP include additional records review; confirmation of groundwater flow direction; and sampling of soil, groundwater, surface water, and sediment (if present). The goals of the SIs are to (1) determine the presence or absence of PFOS/PFOA in soil, surface water, or sediment (if present) at each potential release location (PRL) and in groundwater downgradient of PRLs; and (2) assess whether contamination from the Installation has migrated offsite. All SI activities will be conducted in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act as amended; the National Oil and Hazardous Substances Pollution Contingency Plan; the Resource Conversation and Recovery Act; and the Statement of Objectives (NGB 2017).

Table ES-1. Phase III Project Installations and PRLs

Phase	Number	Installation	State	PRLs
III	1	Rosecrans Memorial Airport	MO	8
III	2	Lambert St. Louis International Airport	MO	5
III	3	Great Falls International Airport	MT	8
III	4	Des Moines International Airport	IA	14
III	5	Sioux Gateway Municipal Report	IA	9
III	6	Hector Field International Airport	ND	10
III	7	Lincoln Municipal Airport	NE	13
III	8	Reno Tahoe International Airport	NV	11
III	9	Boise International Airport	ID	8
III	10	Tulsa International Airport	OK	7
III	11	Will Rogers International Airport	OK	9
III	12	Ellington Field (Houston)	TX	9
III	13	Klamath Falls International Airport (Kingsley Field)	OR	7
III	14	Portland International Airport	OR	9
III	15	Cheyenne Municipal Airport	WY	9
Total PRLs				***136***

PRL = Potential release location.

QAPP Worksheets #1 and #2 – Title and Approval Page

Document Title: Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) for Fiscal Year 2017 (FY17) Phase III Regional Site Inspections (SIs) for Perfluorooctane Sulfonate (PFOS)/Perfluorooctanoic Acid (PFOA) at Multiple Air National Guard (ANG) Installations

Preparer's Name and Organizational Affiliation: Selvam Arunachalam, Leidos

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Preparation Date (day/month/year): October 11, 2017

LEIDOS APPROVAL SIGNATURES

Investigative Organization's Project Manager

Matthew Vest, January 3, 2018
Project Manager, Date
Project Management Professional/Leidos

Investigative Organization's Project Chemist

Joseph Peters/Leidos January 3, 2018
Date

Investigative Organization's Project Quality Assurance Officer

Kimberly Murphree/Leidos January 3, 2018
Date

APPROVAL SIGNATURE

Lead Organization: National Guard Bureau (NGB)

Lead Organization's Project Managers

CROW.WINSTON.KIM.1130696135 Digitally signed by CROW.WINSTON.KIM.1130696135 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USAF, cn=CROW.WINSTON.KIM.1130696135 Date: 2018.01.04 12:18:05 -05'00'

Winston Crow, Date
NGB, Contracting Officer's Representative
Division Restoration Branch (NGB/A4OR)

QAPP Worksheets #1 and #2 – Title and Approval Page (continued)

Project Name: FY17 Phase III Regional SIs for PFOS/PFOA at Multiple ANG Installations

Site Location: Multiple Installations

Site Number/Code: Not applicable (N/A)

Operable Unit: N/A

Contractor Name: Leidos

Contract Number: W9133L-14-D-0007

Task Order Number: 0011

Contract Title: FY17 Phase III Regional SIs for Perfluorinated Compounds at Multiple ANG Installations

1. Identify guidance used to prepare QAPP:

- *Uniform Federal Policy for Quality Assurance Project Plans: Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs – Part 1: UFP-QAPP Manual* (IDQTF 2005a).
- *Workbook for Uniform Federal Policy for Quality Assurance Project Plans: Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs – Part 2A: UFP-QAPP Workbook* (IDQTF 2005b).
- *Uniform Federal Policy for Quality Assurance Project Plans – Part 2B, Quality Assurance/Quality Control Compendium: Minimum QA/QC Activities* (IDQTF 2005c).
- *Uniform Federal Policy for Quality Assurance Project Plans – Part 2A (Revised): Optimized UFP-QAPP Worksheets* (IDQTF 2012).
- *U.S. Department of Defense Quality Systems Manual for Environmental Laboratories*, Version 5.1 (DoD 2017).
- *Air National Guard Environmental Restoration Program Investigation Guidance* (ANG 2009).

2. Identify regulatory program: NGB has lead regulatory authority over conducting the SIs. NGB will coordinate meetings, plans, and reports with each state environmental regulatory agency and make effort to obtain concurrence.

3. Identify approval entities: NGB signatory approval; state agency concurrence by formal letter will be obtained if possible but is not required for SIs.

4. Indicate whether the QAPP is Project-Specific: Yes, this UFP-QAPP is applicable to ANG Project Number ANGH20177151 and includes 15 Installations.

5. List dates of scoping sessions that were held: A project kickoff meeting was held at ANG Readiness Center, Joint Base Andrews, Maryland, on August 1, 2017. Subsequent Installation-specific kickoff meetings were held at each Installation on various dates. (See Installation-specific addenda for details.)

6. List dates and titles of QAPP documents written for previous work, if applicable: N/A

7. List organizational partners (stakeholders) and connection with lead organization: See item 2 above.

8. List data users: NGB/A4OR, state agencies, Leidos, Installations, and the public.

9. **If any required QAPP elements and required information are not applicable to the project, list the omitted QAPP elements and required information. Provide an explanation for their exclusion below:** All 37 QAPP worksheets are applicable, and information is included either in this UFP-QAPP or a reference is made to the Installation-specific SI Work Plan where site-specific details are included.

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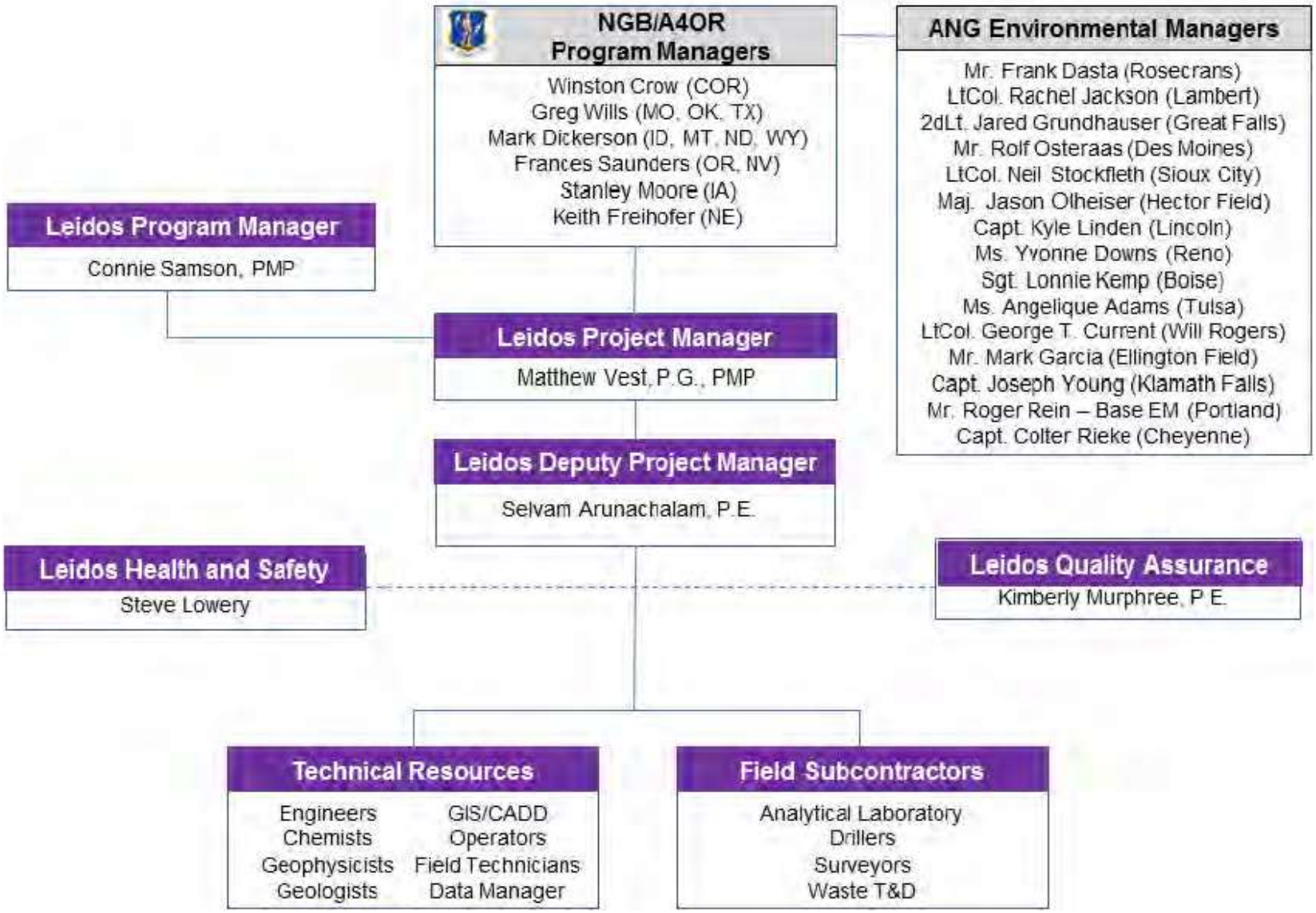
QAPP Worksheets #3 and #5 – Project Organization and Distribution List



QAPP Worksheets #3 and #5 – Project Organization and Distribution List (continued)

Project Contact List for Fiscal Year 2017 Phase III Regional SIs for PFOS/PFOA			
PFOS/PFOA Phase III Project Contacts			
ANG Contracting Officer's Representative	**Leidos Program Manager**	**Leidos Project Manager**	**Leidos Deputy Project Manager**
Winston Crow	Connie Sampson	Matthew Vest	Selvam Arunachalam
PFOS/PFOA Phase III Installation Contacts			
ANG Project Manager	**BB&E**	**ANG Environmental Manager**	**State Regulator(s)**
Boise IAP			
Mark Dickerson	Tom Barzyk	Sgt Lonnie Kemp	Dean Nygard
Cheyenne Municipal Airport			
Mark Dickerson	Jim Colmer	Capt Colter Rieke	Troy Sanders
Great Falls IAP			
Mark Dickerson	Tom Barzyk	2dLt Jared Grundhauser	Patrick Skibicki
Hector Field IAP			
Mark Dickerson	Tom Barzyk	Major Jason Olheiser (BCE)	Christine Roob
Lincoln Municipal Airport			
Keith Freihofer	Wendi Michael	Capt Kyle Linden	Wade Gregson Ed Southwick
Des Moines IAP			
Stan Moore	Wendi Michael	Rolf Osteraas	Daniel Cook
Sioux Gateway Airport			
Stan Moore	Wendi Michael	LtCol Neil Stockfleth	Daniel Cook
Klamath Falls IAP			
Fran Saunders	Tom Barzyk	Capt Joseph Young	Katie Robertson
Portland IAP			
Fran Saunders	Tim Barzyk	Roger Rein	Dan Hafley
Reno Tahoe IAP			
Fran Saunders	Tom Barzyk	Yvonne Downs	Alison Oakley
Ellington Field (Houston)			
Greg Wills	Wendi Michael	Mark Garcia	Maureen Hatfield
Lambert St. Louis IAP			
Greg Wills	Doug Barber	LtCol Rachel Jackson	Jim Harris
Rosecrans Memorial Airport			
Greg Wills	Doug Barber	Frank Dasta	Philip Mueller Rueben Zamarrippa

QAPP Worksheets #3 and #5 – Project Organization and Distribution List (continued)

Project Contact List for Fiscal Year 2017 Phase III Regional SIs for PFOS/PFOA			
Tulsa IAP			
Greg Wills	Jim Colmer	Angelique Adams	Hal Cantwell
Will Rogers IAP			
Greg Wills	Jim Colmer	LtCol George T. Current	Hal Cantwell

ANG = Air National Guard.
IAP = International Airport.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.
SI = Site inspection.

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QAPP Worksheets #4 and #7 – Project Personnel Qualifications and Sign-Off Sheet

Project Personnel	Title/Role	Responsibility	Education/Experience	Date Confirmed Receipt of UFP-QAPP/Read Complete[a]
Connie Samson, PMP	Program Manager	Program oversight	M.S. Environmental Engineering B.S. Biology 30 years experience	
Matthew Vest, PMP, P.G.	Project Manager	Project oversight; primary point of contact for NGB/A4OR and regulators	M.S. Geology B.S. Geology 22 years experience	
Selvam Arunachalam.	Deputy Project Manager	Project technical oversight for investigative activities, plans, and reports; secondary point of contact for NGB/A4OR and regulators	M.S. Environmental Engineering B.S. Civil Engineering 24 years experience	
Joseph Peters	Project QA Officer/ Project chemistry oversight	Oversight of analytical tasks, including UFP-QAPP preparation and reporting; review of corrective actions; data verification; and data validation and laboratory interface	B.S. Chemistry 33 years experience	
Brooke Francis	Project Chemist/ Data verification and validation	UFP-QAPP preparation, data verification and validation, corrective action identification, and laboratory interface	B.S Chemistry 10 years experience	
Marie Simpson	Data Manager	Receive data packages from analytical laboratory, ensure data are properly entered and stored in Leidos database, and coordinate ERPIMS submittals	M.B.A. B.S. Computer Science/ Information Systems 20 years experience	
Kimberly Murphree, P.E.	Program Quality Officer	QA oversight	B.S. Civil Engineering 20 years experience	

[a] Leidos maintains the copy that includes all original signatures.
B.S. = Bachelor of Science.
ERPIMS = Environmental Resources Program Information Management System.
M.B.A. = Master of Business Administration.
M.S. = Master of Science.
NGB/A4OR = National Guard Bureau Operations Division Restoration Branch.
P.G. = Professional Geologist.
PMP = Project Management Professional.
QA = Quality assurance.
UFP-QAPP = Uniform Federal Policy Quality Assurance Project Plan.

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QAPP Worksheet #6 – Communication Pathways

Communication Driver	Responsible Entity	Name	Procedure (Timing, Pathway, etc.)
POCs for ANG	NGB/A4OR	Winston Crow	Deliverables will be distributed to ANG and its oversight contractor (BB&E) by the Leidos PM/Staff Scientist. Routine status meetings will be held throughout the project for ANG, and informal communication will be conducted as needed. Leidos will submit Monthly Progress Reports to NGB/A4OR
	ANG Oversight Contractor	BB&E (see Worksheets #3 and #5)	
POCs for Installations	Installation EM	See Worksheets #3 and #5	Deliverables will be distributed to the Installation EM by the Leidos PM. Routine status meetings will be held throughout the project, and informal communication will be conducted as needed
POCs for state agencies	Varies by state (see Installation-specific addenda)	See Worksheets #3 and #5 (various)	Draft final deliverables will be distributed to state agencies by the Leidos PM. Routine status meetings will be held throughout the project if requested, and informal communication will be conducted as needed
POCs for Leidos	Leidos PMs	Matt Vest and Selvam Arunachalam	Deliverables will be distributed to ANG and its oversight contractor, state agencies, and the Installation EM by the Leidos PM. Leidos will present routine updates to stakeholders throughout the project, both through formal meetings and informal communications, as needed
Reporting data quality issues	Leidos Project Chemist	Joseph Peters	The need for corrective actions will be reported to the Leidos PM. Any flagging of data results will be reported to the Leidos Data Manager, who will notify the Leidos PM, if warranted
Changes to UFP-QAPP field sampling procedures	Leidos Field Manager(s)	TBD	Notify Leidos PM or Staff Scientist by phone and/or email of field-related problems and/or requested changes to field sampling or screening procedures
Stopping work due to health and safety issues or unexpected field conditions	Leidos Field Manager(s) and/or Site Health and Safety Officer(s)	TBD	Follow procedures outlined in the SSHP
Reporting sample receipt issues/laboratory data quality issues	Laboratory PM	ALS-Kelso: Kurt Clarkson TestAmerica: David Alltucker	All sample receipt issues and data quality issues will be reported to Leidos by phone or email as soon as possible after issues are identified

ANG = Air National Guard.
EM = Environmental Manager.
NGB/A4OR = National Guard Bureau Operations Division Restoration Branch.
PM = Project Manager.
POC = Point of contact.
SI = Site inspection.
SSHP = Site Safety and Health Plan.
TBD = To be determined. (Note: Multiple Field Managers [FMs]/Site Health and Safety Officers [SHSOs] will be required for project execution. The FM/SHSO identified for each Installation can be found on the Field Change Notice to the Site Safety Health Plan issued and approved prior to fieldwork execution.)
UFP-QAPP = Uniform Federal Policy Quality Assurance Project Plan.
WP = Work Plan.

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QAPP Worksheet #8 – Special Personnel Training Requirements

Project Function	Specialized Training – Title or Description of Course	Training Provider and Date(s)	Personnel/Group Receiving Training	Personnel Title/ Organizational Affiliation	Location of Training Record/Certificate
Project Management	Familiarity with ANG Investigation Guidance	Self-paced, various dates	Matt Vest, Selvam Arunachalam	Leidos PM, Leidos Deputy PM	Leidos requires all employees to complete required training based on job classification and work assignments. All training records, certifications (i.e. HAZWOPER), and medical clearances are kept by Leidos and are available upon request
	Leidos Administrative Procedures	Leidos self-paced, various dates	Matt Vest, Selvam Arunachalam	Leidos PM, Leidos Deputy PM	
Project QA	Leidos QA Procedures	Leidos self-paced, various dates	Leidos project personnel	Leidos project personnel	
Data Management	Leidos Data Management Procedures	Leidos self-paced, various dates	Leidos project personnel involved with handling data	Leidos project personnel	
Field Personnel	Leidos Field Technical Procedures	Leidos self-paced, various dates	Leidos field personnel	Leidos PM Leidos Deputy PM Leidos Staff Hydrogeologist Leidos QA Officer Leidos field personnel	
	40-hr HAZWOPER and 3-day OJT training, with 8-hr refresher, as applicable	Various providers and dates	Leidos field personnel	Leidos field personnel	
	8-hr HAZWOPER Supervisor training	Various providers and dates	Leidos Field Manager(s)	Leidos Field Manager(s)	
	Site-specific health and safety training	Leidos Field Manager, prior to fieldwork	Leidos field personnel	Leidos field personnel	

Note: All referenced Leidos Environmental Science and Engineering procedures are available on the Leidos internal QA website, accessible to Leidos employees. Leidos' referenced procedures can be made available to any stakeholder upon request.
ANG = Air National Guard.
HAZWOPER = Hazardous Waste Operations and Emergency Response.
OJT = On-the-job.
PM = Project Manager.
QA = Quality assurance.

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QAPP Worksheet #9 – Project Scoping Session Participants Sheet

Project Name: Fiscal Year 2017 Phase III Regional Site Inspections For Perfluorinated Compounds at Multiple Air National Guard Installations **Projected Date (s) of Sampling:** January 2018 through August 2018 **Project Manager:** Matthew Vest	**Site Name:** Air National Guard Readiness Center **Site Location:** Joint Base Andrews, Maryland
Date of Session: August 1, 2017 **Scoping Session Purpose:** Post-Award Project Kickoff Meeting	

Post-Award Project Kickoff Meeting

A post-award kickoff meeting was held on August 1, 2017, at Joint Base Andrews, Maryland. The final meeting minutes for the Phase III project and list of attendees are listed below.

FINAL PROJECT KICKOFF MEETING MINUTES
for
FY17 Phase III Regional Site Inspections
for Perfluorinated Compounds
at
Multiple Air National Guard Installations

PROJECT NUMBER: ANGH20177151

Air National Guard Readiness Center
Joint Base Andrews, Maryland

Contract Number W9133L-14-D-0007

Task Order Number 0011

1 August 2017

Meeting Participants:

- Mr. Dennis Pinigis – NGB/A4OR Technical Advisor, Senior Program Manager;
- Mr. Winston Crow – NGB/A4OR Program Manager/Contracting Officer's Representative (COR) for TO 0011 (PFC Phase III);
- Mr. Stan Moore – NGB/A4OR Program Manager/COR for TO 0009 (PFC Phase IV) (via teleconference);
- Ms. Susan Klypchak – NGB Contracting Specialist (via teleconference);
- Mr. Greg Wills – NGB/A4OR Program Manager;
- Mr. Mark Dickerson – NGB/A4OR Program Manager;
- Ms. Fran Saunders – NGB/A4OR Program Manager;
- Mr. Keith Freihofer – NGB/A4OR Program Manager (via teleconference);
- Mr. Brant Crumbling – NGB/A4OR Program Manager;
- Ms. Connie Samson – Leidos Program Manager;
- Mr. Matt Vest – Leidos Project Manager (PFC Phase III);
  Mr. Selvam Arunachalam – Leidos Deputy Project Manager (PFC Phase III);

- Mr. Mark Kidder – Leidos Project Engineer (via teleconference);
- Mr. Mike Poligone – Leidos Project Manager (PFC Phase IV);
- Mr. Matt Machusick – Leidos Project Geologist (PFC Phase III and Phase IV);
- Mr. Aaron Etnyre – BB&E Oversight;
- Mr. Doug Barber – BB&E Oversight; and
- Mr. Jim Colmer – BB&E Oversight (via teleconference).

The meeting for Task Order (TO) 0011 (Phase III Site Inspection [SI] for Perfluorinated Compounds [PFCs]) commenced at 0900 Eastern Daylight Time (EDT) once all teleconference attendees were on the line. Mr. Winston Crow (NGB/A4OR) began the presentation.

Following introductions, Mr. Crow presented the general contract information, Statement of Objectives requirements, protocols, and Air National Guard (ANG) expectations for the TO.

Mr. Matt Vest (Leidos) began the Leidos portion of the presentation and discussed the project goals and objectives, execution plan, project roles and responsibilities, channels of communication, and the project schedule. Mr. Selvam Arunachalam (Leidos) presented the overall technical approach for the SI and provided an example of the proposed sampling approach for the potential release locations (PRLs) at one of the ANG Bases.

Mr. Dennis Pinigis (NGB/A4OR) said that the term PFC should not be used in future meeting presentations and SI Work Plans (WPs) and Reports. It was agreed that perfluorooctane sulfonate/perfluorooctanoic acid (PFOS/PFOA) will replace any reference to PFC in all public documents.

Mr. Doug Barber (BB&E) requested that the groundwater flow direction be shown in the figures included in the SI WP. Mr. Aaron Etnyre (BB&E) mentioned that they are not seeing much PFOS/PFOA in soil, sediment, and surface water samples from PRLs and suggested focusing on groundwater due to the mobility of these compounds. Mr. Etnyre also suggested the sampling approach at hangar locations should consider the possibility of aqueous film-forming foam overflow into the ramp area outside the building.

Mr. Crow requested the contractor periodically check state regulations for updates to PFOS/PFOA requirements. Mr. Pinigis requested a spreadsheet showing the fieldwork start date and the Final SI Report date for each Installation included in the TO. Mr. Crow requested the Monthly Progress Reports include data on the number of employees that worked on the project.

The need for SI WPs in Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) format was discussed in detail, and concerns were expressed regarding regulator familiarity with the UFP-QAPP format and the potential for increased review timeframes. It was agreed that a single project-wide UFP-QAPP will be developed and included as an appendix to the Installation-specific sampling and analysis plans. BB&E suggested that the project-wide UFP-QAPP and the sampling and analysis plan for one Installation be submitted for ANG and BB&E review before submitting additional Installation-specific sampling and analysis plans. This approach would minimize repetitive comments and accelerate WP submittal to regulators.

Mr. Greg Wills (NGB/A4OR) indicated the termination of lease is in process with the Air Force Civil Engineer Center for a portion of Lambert ANG Base, and some of the leased property will go back to the airport. Once this occurs, a right of entry authorization will need to be obtained to conduct the SI fieldwork. Ms. Fran Saunders (NGB/A4OR) mentioned that Installations in Portland, Oregon, and Ohio have received a high level of concern from the state regulators and will likely require acceleration of field schedule.

The meeting for TO 0011 adjourned at approximately 10:30 EDT.

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QAPP Worksheet #10 – Problem Definition/Conceptual Site Model

In 2012, the U.S. Environmental Protection Agency (EPA), under the Safe Drinking Water Act, published the third Unregulated Contaminant Monitoring Rule (UCMR3), which required public water supplies across the country to sample for a list of 30 unregulated contaminants, including the 6 perfluorinated compounds—perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), perfluorobutane sulfonate (i.e., PFBS), perfluorononanoic acid (i.e., PFNA), perfluoroheptanoic acid (i.e., PFHpA), and perfluorohexane sulfonate (i.e., PFHxS), hereafter collectively referred to as PFOS/PFOA. Results of the UCMR3 indicated detections of PFOS/PFOA at numerous locations, including several near U.S. Department of Defense (DoD) facilities. In general, PFOS/PFOA detections related to DoD facilities are often linked to the use of aqueous film-forming foam (AFFF), which contains PFOS/PFOA. AFFF is used as a firefighting agent to suppress fires involving petroleum hydrocarbons. As PFOS/PFOAs are emerging contaminants, they have not been historically analyzed during site characterizations; therefore, minimal sampling data exist for most sites.

In 2016, EPA issued a drinking water health advisory for PFOS/PFOA. The health advisory is 70 nanograms per liter (ng/L) for the combined total of PFOS and PFOA. When AFFF is released to the environment, PFOS/PFOA can migrate into soil and groundwater. Once in the environment, the compounds are persistent and may migrate through erosion, surface water, groundwater, and/or biologic uptake. The amount of PFOS/PFOA that enters the environment depends on the type and amount of AFFF used, where and when it was used, the type of soil, and other factors. If private or public wells are located nearby, they could potentially be affected by PFOS/PFOA. Similarly, surface water features may be impacted and may convey PFOS/PFOA to downgradient receptors. Potential environmental releases of AFFF at Air National Guard Installations include, but are not limited to, the following locations and activities:

- Firefighting training areas;
- Fire stations;
- Fire truck equipment testing and maintenance areas;
- Aircraft for fuel emergency response activities;
- Testing or emergency activation of AFFF fire suppression systems in hangars and buildings;
- Fire suppression system releases in hangers and buildings due to malfunctions;
- Other spills and releases; and
- Storm water and/or surface water via drainage canals, outfalls, wastewater treatment plants, or AFFF ponds.

The conceptual site model varies between Installations; therefore, additional details for each Installation are presented in Section 6.2.2 of the Installation-specific Site Inspection Work Plan.

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QAPP Worksheet #11 – Project Quality Objectives/Systematic Planning Process Statements

This worksheet documents the problem statement and project goals, identifies the information inputs and boundaries of the site inspection (SI), and provides a high-level overview of the investigative approach more specifically detailed in subsequent worksheets.

A. Problem Statement

Preliminary assessments (PAs) conducted by the Air National Guard (ANG) surveillance and oversight contractor, BB&E, have identified numerous potential release locations (PRLs) at each of the Installations. SI activities are being conducted to determine the presence or absence of perfluorooctane sulfonate/perfluorooctanoic acid (PFOS/PFOA) in soil, groundwater, surface water, and sediment (if present) at the PRL and in groundwater immediately downgradient of PRLs at the Installation outfall (if present).

B. Project Goals

In accordance with the Statement of Objectives (NGB 2017), project goals include the following:

For all Installations listed in Table ES-1, conduct SI activities, including determining the presence or absence of PFOS/PFOA in all media, including surface and subsurface soils at each PRL; groundwater samples immediately downgradient of each PRL; and sediment and surface water (if present, for example at outfalls), and determine if PFOS/PFOA-contaminated groundwater has reached the Installation boundary. Sampling shall only be performed on ANG property. For the off-Installation stormwater outfalls, wet wells, drainage basins, and drainage ditches, SI activities will use the last-available downgradient location that is still on ANG property for a sample site location. Existing monitoring wells, if available, will be utilized as feasible, and any new monitoring wells will be developed prior to sampling.

C. Information Inputs

Primary information inputs on this project include:

- Analytical results of the soil, sediment, groundwater, and surface water sampling outlined in the SI Work Plan (WP).
- Field observations made during preliminary site visits and execution of field activities (e.g., determination of soil lithology, measured depth to water table, etc.).
- Secondary data listed in Worksheet #13.

D. Study Boundaries and Target Analytes

SI activities target PRLs identified during the PA and are limited to areas located within the Installation property boundary. Target analytes for SI activities are the six PFOS/PFOAs included in third Unregulated Contaminant Monitoring Rule (i.e., UCMR3). Soil, groundwater, sediment, and surface water (if present) will be analyzed for to determine if these six compounds are present.

E. Analytic Approach

Worksheet #18 outlines the samples that will be collected and analyzed to meet project goals. Groundwater samples will represent conditions immediately downgradient of PRLs and at the Installation boundary; soil, sediment, and surface water samples will represent the media at each collection location.

F. Performance and Acceptance Criteria

PFOS/PFOA delineation will be completed by identifying areas where PFOS/PFOAs are detected and/or exceed available action limits, as available (see Worksheet #15). Performance and acceptance will be achieved through application of the quality assurance/quality control methods and procedures outlined within this Uniform Federal Policy Quality Assurance Project Plan, and ultimately determined through ANG approval of and regulatory concurrence with the final results, as presented in subsequent SI Reports.

G. Detailed Plan for Obtaining Data

Worksheet #17 provides the basis for proposed sampling, with individual sample details provided in Worksheet #18. Worksheets #19 and #30, #20, and #24 through #28 provide specific design analytical requirements. Additional details are provided in the SI WP.

QAPP Worksheet #12 – Measurement Performance Criteria Table (PFOS/PFOA in Waters and Soils)

Matrix: Water and soil **Analytical Group:** PFOS/PFOA **Concentration Level:** All levels **Analytical Method/ Standard Operating Procedure**	**Data Quality Indicator**	**Measurement Performance Criteria**[a]	**QC Sample and/or Activity Used to Assess Measurement Performance**	**QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A)**
EPA Method 537, revision 1.1 modified; DoD QSM, version 5.1, Table B-15	Accuracy/Bias	Standards containing both branched and linear isomers must be used when commercially available	ICAL, CCVs, and spiking solutions	A
DoD QSM, version 5.1, Table B-15	Sensitivity Accuracy/Bias	Analyte concentrations at LOQ must be within ±30% of true value	ISC	A
DoD QSM, version 5.1, Table B-15	Accuracy/Bias Instrument Contamination	No analytes detected >1/2 LOQ	Instrument blank	A
EPA Method 537, revision 1.1 modified	Accuracy/Bias Field Environment Contamination	Not applicable; if target analytes are detected in the field QC blank, then associated field samples will be evaluated for potential sampling and/or field environment contamination. If field sample detects are within five times the field QC blank results, then the field sample result is qualified as non-detect	Field blank, equipment rinse blank, field reagent blank	S & A
DoD QSM, version 5.1, Table B-15	Accuracy/Bias	50% to 150% of true value	Extraction internal standards	A

QAPP Worksheet #12 – Measurement Performance Criteria Table (PFOS/PFOA in Waters and Soils) (continued)

Matrix: Water and soil **Analytical Group:** PFOS/PFOA **Concentration Level:** All levels **Analytical Method/ Standard Operating Procedure**	**Data Quality Indicator**	**Measurement Performance Criteria**[a]	**QC Sample and/or Activity Used to Assess Measurement Performance**	**QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A)**
DoD QSM, version 5.1, Table B-15	Accuracy/Bias	-50% to +50% of peak area of ICAL midpoint or CCV	Injection internal standards	A
EPA Method 537, revision 1.1 modified; DoD QSM, version 5.1, Table B-15	Accuracy/Bias	Laboratory analyte recovery in-house limits; RPD ≤30%	LCS	A
EPA Method 537, revision 1.1 modified	Accuracy/Bias	70 to 130%; Note: Surrogates are not a DoD QSM, version 5.1 requirement because isotope dilution methods use the extraction internal standard for analyte quantitation. The use of surrogates will be optional, depending on the laboratory method requirements	Surrogate	A
EPA Method 537, revision 1.1 modified; DoD QSM, version 5.1, Table B-15	Accuracy/Laboratory Contamination	No analytes detected >1/2 LOQ or >1/10 the amount measured in any samples or 1/10 the regulatory limit, whichever is greater	Method blank	A
EPA Method 537, revision 1.1 modified	Accuracy/Bias Precision	Laboratory LCS analyte recovery in-house limits; RPD ≤30%	MS/MSD	A

QAPP Worksheet #12 – Measurement Performance Criteria Table (PFOS/PFOA in Waters and Soils) (continued)

Matrix: Water and Soil **Analytical Group:** PFOS/PFOA **Concentration Level:** All levels **Analytical Method/ Standard Operating Procedure**	**Data Quality Indicator**	**Measurement Performance Criteria**[a]	**QC Sample and/or Activity Used to Assess Measurement Performance**	**QC Sample Assesses Error for Sampling (S), Analytical (A) or Both (S&A)**
DoD QSM, version 5.1, Table B-15	Accuracy/Bias	70 – 130% recovery	Post-spike sample; only applies to results <LOQ in aqueous samples prepared by serial dilution method. Spiking must occur at the LOQ	A
EPA Method 537, revision 1.1 modified; DoD QSM, version 5.1, Table B-15	Overall Precision	RPD ≤50% when both samples ≥sample-specific LOQ	Field duplicate	S&A
EPA Method 537, revision 1.1 modified; DoD QSM, version 5.1, Table B-15	Completeness	90%	Reported sample data	S&A
EPA Method 537, revision 1.1 modified; DoD QSM, version 5.1, Table B-15	Comparability	Based on accuracy and media comparison	Use of standardized Standard Operating Procedures in field and laboratory	S&A

[a] Laboratory in-house limits are included immediately following this worksheet.
CCV = Continuing calibration verification.
DoD = U.S. Department of Defense.
EPA = U.S. Environmental Protection Agency.
ICAL = Initial calibration.
ISC = Instrument sensitivity check.
LCS = Laboratory control sample.
LOQ = Limit of quantitation.
MS = Matrix spike.
MSD = Matrix spike duplicate.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.
QC = Quality control.
QSM = Quality Systems Manual.
RPD = Relative percent difference.

Laboratory In-House Quality Control Limits

Laboratory	Analyte	CAS	Matrix	LCS %Rec	MS %Rec	RPD
ALS-Kelso	Perfluorooctanoic acid (PFOA)	335-67-1	Water	72 – 130	72 – 130	30
ALS-Kelso	Perfluorononanoic acid (PFNA)	375-95-1	Water	77 – 127	77 – 127	30
ALS-Kelso	Perfluorooctane sulfonic acid (PFOS)	1763-23-1	Water	74 – 135	74 – 135	30
ALS-Kelso	Perfluorobutane sulfonic acid (PFBS)	375-73-5	Water	70 – 127	70 – 127	30
ALS-Kelso	Perfluoroheptanoic acid (PFHpA)	375-85-9	Water	67 – 142	67 – 142	30
ALS-Kelso	Perfluorohexane sulfonic acid (PFHxS)	355-46-4	Water	71 – 130	71 – 130	30
ALS-Kelso	Perfluorononanoic acid (PFNA)	375-95-1	Soil	50 – 150	50 – 150	50
ALS-Kelso	Perfluorooctane sulfonic acid (PFOS)	1763-23-1	Soil	50 – 150	50 – 150	50
ALS-Kelso	Perfluorooctanoic acid (PFOA)	335-67-1	Soil	50 – 150	50 – 150	50
ALS-Kelso	Perfluorobutane sulfonic acid (PFBS)	375-73-5	Soil	50 – 150	50 – 150	50
ALS-Kelso	Perfluoroheptanoic acid (PFHpA)	375-85-9	Soil	50 – 150	50 – 150	50
ALS-Kelso	Perfluorohexane sulfonic acid (PFHxS)	355-46-4	Soil	50 – 150	50 – 150	50
TestAmerica	Perfluorooctanoic acid (PFOA)	335-67-1	Water	80 – 120	80 – 120	30
TestAmerica	Perfluorononanoic acid (PFNA)	375-95-1	Water	77 – 137	77 – 137	30
TestAmerica	Perfluorooctane sulfonic acid (PFOS)	1763-23-1	Water	83 – 126	83 – 126	30
TestAmerica	Perfluorobutane sulfonic acid (PFBS)	375-73-5	Water	88 – 130	88 – 130	30
TestAmerica	Perfluoroheptanoic acid (PFHpA)	375-85-9	Water	89 – 127	89 – 127	30
TestAmerica	Perfluorohexane sulfonic acid (PFHxS)	355-46-4	Water	87 – 126	87 – 126	30
TestAmerica	Perfluorononanoic acid (PFNA)	375-95-1	Soil	50 – 150	50 – 150	50
TestAmerica	Perfluorooctane sulfonic acid (PFOS)	1763-23-1	Soil	50 – 150	50 – 150	50
TestAmerica	Perfluorooctanoic acid (PFOA)	335-67-1	Soil	50 – 150	50 – 150	50
TestAmerica	Perfluorobutane sulfonic acid (PFBS)	375-73-5	Soil	50 – 150	50 – 150	50
TestAmerica	Perfluoroheptanoic acid (PFHpA)	375-85-9	Soil	50 – 150	50 – 150	50
TestAmerica	Perfluorohexane sulfonic acid (PFHxS)	355-46-4	Soil	50 – 150	50 – 150	50

Note: TestAmerica's in-house accuracy and precision limits for soil are temporary and will be updated once in-house limits are established.
CAS = Chemical Abstracts Service.
LCS = Laboratory control sample.
MS = Matrix spike.
%Rec = Percent recovery.
RPD = Relative percent difference.

QAPP Worksheet #12 – Measurement Performance Criteria Table (PFOS/PFOA in Waters and Soils) (continued)

A. Precision

Precision is the measure of the degree of reproducibility exhibited by a set of replicate results or the agreement among repeat observations made under the same conditions. Precision is usually expressed as standard deviation, relative percent difference (RPD), or range, in either absolute or relative terms. Precision will be determined through the use of spike analyses conducted on duplicate pairs of laboratory and environmental samples (matrix spike/matrix spike duplicates [MS/MSDs]) or comparison of laboratory duplicate responses. The RPD between two positive results will be calculated and used as a quality control (QC) indication of the field procedures, matrix effects, and precision of the analyses conducted. In instances where there is no MS/MSD associated with a sample delivery group (SDG), the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) will be used to access precision.

The precision of the laboratory analytical processes will be determined through evaluation of LCS/LCSD analyses. The standard deviation of these measurements over time will provide confidence that implementation of the analytical protocols was consistent and acceptable. The RPD associated with each LCS/LCSD pair will be used to access laboratory precision for SDGs that do not have an associated MS/MSD pair. These measurements will establish the precision of the laboratory analytical process.

Precision of the field sampling process will be determined through the evaluation of field duplicate samples. Field duplicate acceptance criteria will be set at 50 RPD.

Environmental sample matrix precision will be assessed by comparing the analytical results between MS/MSD analyses and laboratory duplicates and field duplicates for each analytical parameter. The RPD will be calculated for each pair of duplicate analysis using Equation (1) and will produce an absolute value for RPD. This precision measurement is impacted by variables associated with the analytical process, influences related to sample matrix interferences, consistent implementation of sampling procedures, and degree of sample homogeneity.

$$RPD = \frac{|S - D|}{\frac{(S + D)}{2}} \times 100 \qquad (1)$$

where

S = First sample value (original value),
D= Second sample value (duplicate value).

B. Accuracy/Bias

Accuracy is the nearness of a result, or the mean of a set of results, to the true or accepted value; bias describes the systematic or persistent distortion associated with a measurement process. The terms accuracy and bias are used interchangeably in this document. Analytical accuracy is expressed as the percent recovery (%R) of an analyte that has been added to a blank sample or environmental sample, at a known concentration, during or after sample preparation. Accuracy will be determined in the laboratory through the use of MS and MSD analyses, and, if necessary, LCS analyses and blank spike analyses. The percent recovery for specific target analytes will be calculated and used as a QC indication of the field procedures, matrix effects, and accuracy of the analyses conducted.

The accuracy of the laboratory analytical measurement process and analytical equipment accuracy will be determined by analyzing LCS and continuing calibration verification (CCV) samples. The percent recovery of blank spike samples (e.g., LCS and CCV) will be calculated using Equation (2). One LCS sample will be analyzed for every matrix and analytical batch. The rate of CCV samples will differ depending on the analytical method.

$$\%R = \frac{A}{B} \times 100 \qquad (2)$$

where

A = The analyte concentration determined experimentally from the spiked sample,
B = The true or accepted value of the spiked sample.

Environmental sample accuracy will be assessed for compliance with the established QC criteria that are described for each analyte in this worksheet using the analytical results of method blanks, MS/MSDs, LCSs, and field QC blanks (field blanks, equipment rinsate blanks, and field reagent blanks). All method blanks must be below one-half of the limit of quantitation (LOQ) or below one-tenth of the amount measured in any associated sample for all analytes, with the exception of common laboratory contaminants, which must be below the LOQ or one-tenth of the amount measured in any associated sample. The percent recovery of MS samples will be calculated using Equation (3). This accuracy measurement is impacted by variables associated with the analytical process, influences related to sample matrix interferences, consistent implementation of sampling procedures, and degree of sample homogeneity.

$$\%R = \frac{A - B}{C} \times 100 \qquad (3)$$

where

A = The analyte concentration determined experimentally from the spiked sample,
B = The background level determined by a separate analysis of the unspiked sample,
C = The amount of spike added.

C. Sensitivity and Quantitation Limits

The sensitivity of an analytical method/instrumentation is a measure of the ability of the test method/instrumentation to meet prescribed minimum levels for reporting. Sensitivity is a significant consideration in the selection of an analytical method(s) that can achieve project-specific data quality objectives. For this project, analytical requirements for sensitivities are represented by laboratory-specific method detection limits (DLs), limits of detection (LODs), and LOQs. The DL is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. Although a result at or above the DL indicates that the analyte is present, the absence of a result at or above the DL is inconclusive (i.e., one cannot confidently state whether the analyte is present or absent), because the false-negative rate at the DL is 50%. The DL is determined periodically by the laboratory from analysis of a sample of a given matrix type containing the analyte of interest. Because DLs are updated frequently, the laboratory is required to provide updated DLs

to Leidos as they become available throughout the duration of the project. The LOD is the smallest amount or concentration of a substance that must be present in a sample to be detected at a 99% confidence level. In other words, if a sample has a true concentration at the LOD, there is a minimum probability of 99% of reporting a "detection" (a measured value ≥DL) and a 1% chance of reporting a non-detect (a false-negative). Per the U.S. Department of Defense (DoD) Quality Systems Manual (QSM), version 5.1 (DoD 2017) requirements, samples that are non-detect for a particular analyte/compound should be reported as the LOD, followed by the laboratory qualifier (U), indicating the analyte/compound was not detected at the laboratory LOD. Per DoD QSM requirements, an instrument sensitivity check (ISC) is analyzed prior to sample analysis and every 12 hr. The ISC is a standard with analyte concentrations at the LOQ and is used to confirm that the analytical instrument is capable of accurately achieving the LOQ values for the target compounds of interest. Laboratory DLs, LODs, and LOQs are laboratory-specific and will be provided in the Installation-specific Site Inspection Work Plans. However, method and instrument sensitivity are able to achieve DL, LOD, and LOQ values well below project action levels for perfluorooctane sulfonate (i.e., PFOS) and perfluorooctanoic acid (i.e., PFOA). Action levels, as applicable, are provided in Worksheet #15.

D. Representativeness

Representativeness is the term most associated with the proper design of the sampling program. Representativeness qualitatively expresses the degree to which data accurately reflect site conditions. Factors that affect the representativeness of analytical data include appropriate sample population definitions, proper sample collection and preservation techniques, analytical holding times, use of standard analytical methods, and determination of matrix or analyte interferences.

E. Comparability

Comparability is a qualitative term that relates a project data set to other data sets. This investigation will employ narrowly defined sampling methodologies, use of standard sampling procedures and equipment, uniform training, documentation of sampling, standard analytical protocols/procedures, QC checks with standard control limits, and universally accepted data reporting units to ensure comparability to other data sets. Through proper implementation and documentation of these standard practices, the project will establish confidence that data will be comparable to other project and programmatic information.

F. Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount of data expected under normal conditions. It is expected that the laboratory will provide data meeting system QC acceptance criteria for all samples tested. Overall project completeness goals take into account the potential for sample losses (e.g., due to breakage) and potential data losses (e.g., due to severe matrix interferences).

Project completeness will be determined by evaluating the planned versus actual data. All data not flagged as rejected by the review, verification, validation, or assessment processes will be considered valid. The sample data quality completeness goal is 90%.

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QAPP Worksheet #13 – Secondary Data Criteria and Limitations Table

Secondary Data	Data Source/Generator	How Data Will Be Used	Limitations on Data Use[a]
Historical data, including photographs, aerial photographs, and/or topographic maps	Various, including records obtained by Leidos and those previously obtained by BB&E during the PAs	Contribute to the understanding of historical activities and site conditions as they pertain to potential and/or known PFOS/PFOA source areas	When a direct copy of the original is available (e.g., a photocopy of a UST record or well construction diagram), the original should be included in an appendix to the report if not otherwise readily available (e.g., in the Administrative Record). When the historical data were obtained via a secondary source (e.g., another report), the source must be clearly cited in the Leidos document
Background information	Various, including reports prepared by other ANG or DoD contractors	Contribute to the understanding of historical activities and site conditions as they pertain to potential and/or known PFOS/PFOA source areas	Minimal limitations as reports from which information is obtained will either have been prepared by a reputable source (e.g., USAF) and/or were reviewed and accepted by regulatory agencies and/or DoD agencies (e.g., those prepared by contractors)
Existing hydrologic/geologic/ hydrogeologic studies	DoD contractors' historical reports (e.g., ANG and USAF)	Hydrologic, geologic, and hydrogeologic characterization, inclusive of detailed drawings and hydrogeologic cross-sections	Minimal limitations as reports from which information is obtained will either have been prepared by a reputable source (e.g., USAF) and/or were reviewed and accepted by regulatory agencies and/or DoD agencies (e.g., those prepared by contractors)
Interviews	Current and former Installation personnel	Contribute to the understanding of historical activities and site conditions as they pertain to potential and/or known PFOS/PFOA source areas	Information obtained from interviews must be attributed to the individual by name if presented within the report; in addition, attempts should be made to verify all verbal information through a second corroborating source. As sampling and analysis will provide primary data confirming the presence/absence of PFOS/PFOAs in environmental media, any uncertainty associated with verbal information provided during interviews is not a significant concern (e.g., no decisions will be made based upon this information)
Analytical data collected during prior or concurrent investigations	Various	Contribute to the understanding of current PFOS/PFOA distribution in groundwater throughout the area	Minimal limitations as reports from which information is obtained will either have been prepared by a reputable source (e.g., USAF) and/or were reviewed and accepted by regulatory agencies and/or DoD agencies (e.g., those prepared by contractors)

[a] All uses of secondary data by Leidos will include the source from which the data were obtained and a statement of any limitations that may apply. For instance, background statements obtained from prior reports will be cited in the text and the source document included in the list of references. Analytical data presented in tables or figures that were not generated by Leidos during the course of this project will have a footnote with the source clearly identified or similar.

ANG = Air National Guard.
DoD = U.S. Department of Defense.
PA = Preliminary assessment.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.
USAF = U.S. Air Force.
UST = Underground storage tank.

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QAPP Worksheets #14 and #16 – Project Tasks and Schedule

The baseline project schedule, which has an 18-month period of performance beginning July 14, 2017, is provided in Exhibit 1. The following primary tasks make up the project scope:

- Task 1. Project Management and Meetings.
  - 1.1 Project Kickoff Meetings,
  - 1.2 Installation Kickoff Meeting,
  - 1.3 Regulatory Meetings, and
  - 1.4 Monthly Progress Reports (MPRs).
- Task 2. Quality Control Plan (QCP).
- Tasks 3 through 17. Installation-Specific Tasks (i.e., Task 3 is Rosecrans Memorial Airport, Missouri). An example of the Task 3 subtasks is shown below and is common to the remaining Tasks 4 through 17.
  - 3.1 Site Inspection (SI) Work Plan (WP),
  - 3.2 SI Fieldwork, and
  - 3.3 SI Report.

Task 1 includes Leidos project management and meetings. Subtask 1.1 is the project kickoff meeting, which was held on August 1, 2017 (see Worksheet #9).

Subtask 1.2 includes a kickoff meeting to be conducted at each Installation, which includes the Air National Guard (ANG) Project Managers (PMs), Installation Environmental Managers (EMs), key Installation personnel, and applicable regulatory agencies. Leidos will prepare the agenda, deliver any necessary briefings, and prepare and submit meeting minutes for all meetings.

Subtask 1.3 includes regulatory or project update meetings with the ANG PMs, Installation EMs, and applicable regulatory agencies to discuss current results and obtain consensus among stakeholders on project status.

Subtask 1.4 includes the submittal of MPRs to the ANG PMs throughout the duration of the project to facilitate team communication and to verify project status. The MPRs will summarize the past month's activities; anticipated activities for the next month; recommendations; any technical, regulatory, and administrative issues; and status of the project schedule, including past due items, pending invoices, and any other action items.

Task 2 includes development of a QCP to ensure that project objectives are achieved for each ANG Installation. The QCP provides (1) an organizational depiction of the project team and chain(s)-of-command; (2) clear steps of project execution that will ensure technically sound, high-quality products are submitted and schedule is maintained; (3) effective communication with ANG and stakeholders by depicting project team, roles and responsibilities of personnel, and chain-of-command; and (4) corrective action procedures that will be implemented if deficiencies are noted. The final QCP (Leidos 2017) was issued on August 25, 2017.

Task 3 is the Rosecrans Memorial Airport.

Task 3.1 includes the development of Installation-specific SI WPs, which include this Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) and a Site Safety and Health Plan (SSHP) as appendices. This UFP-QAPP will be submitted for ANG review as a draft version, followed by a draft final version for regulatory input; however, per the Statement of Objectives (NGB 2017), regulator concurrence is encouraged but not required. The SSHP will be prepared in draft and final versions, with the draft submitted to ANG for review and comment.

Task 3.2 includes all soil, groundwater, surface water, and sediment sampling. The SI WP further describes planned field components of the SI activities in their anticipated chronological order.

Task 3.3 includes the preparation of SI Reports to document results of the investigation and provide conclusions and recommendations.

Exhibit 1. Project Schedule

[11x17, 4 pages, 35 - 38]

QAPP Worksheet #15a – Reference Limits and Evaluation Table (PFOS/PFOA in Waters)

Laboratory	Analyte	CAS Number	Project Action Limit (ng/L)	Achievable Laboratory Limits (ng/L)[c]		
				DL	LOD	LOQ
ALS-Kelso	Perfluorooctanoic acid (PFOA)	335-67-1	70 [a]	0.27	0.8	5.0
ALS-Kelso	Perfluorononanoic acid (PFNA)	375-95-1	N/A	0.51	1.2	5.0
ALS-Kelso	Perfluoroheptanoic acid (PFHpA)	375-85-9	N/A	0.31	1.2	5.0
ALS-Kelso	Perfluorobutanesulfonate (PFBS)	375-73-5	400,000[b]	0.41	1.2	5.0
ALS-Kelso	Perfluorohexane sulfonate (PFHxS)	355-46-4	N/A	0.35	1.2	5.0
ALS-Kelso	Perfluorooctane sulfonate (PFOS)	1763-23-1	70[a]	0.60	1.2	5.0
TestAmerica	Perfluorooctanoic acid (PFOA)	335-67-1	70 [a]	0.85	2.0	4.0
TestAmerica	Perfluorononanoic acid (PFNA)	375-95-1	N/A	0.27	1.0	2.0
TestAmerica	Perfluoroheptanoic acid (PFHpA)	375-85-9	N/A	0.25	1.0	2.0
TestAmerica	Perfluorobutanesulfonate (PFBS)	375-73-5	400,000[b]	0.30	1.0	2.0
TestAmerica	Perfluorohexane sulfonate (PFHxS)	355-46-4	N/A	0.30	1.0	2.0
TestAmerica	Perfluorooctane sulfonate (PFOS)	1763-23-1	70[a]	0.54	2.0	4.0

[a] Project action limits (U.S. Environmental Protection Agency [EPA] health advisory levels) for groundwater and surface water are drinking water standards, as updated in 2016. When both PFOS and PFOA are found in water, the combined concentrations of PFOS and PFOA should be compared to the 70-ng/L health advisory level.
[b] The groundwater and surface water project action limit for PFBS (400,000 ng/L) is the resident risk-based screening level for tap water from the June 2017 EPA regional screening level table.
[c] Achievable laboratory limits are updated on a regular basis and are subject to change.
CAS = Chemical Abstracts Service.
DL = Detection limit.
LOD = Limit of quantitation.
LOQ = Limit of detection.
N/A = Not available.

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QAPP Worksheet #15b – Reference Limits and Evaluation Table (PFOS/PFOA in Solids)

Laboratory	Analyte	CAS Number	Project Action Limit (µg/kg)	Achievable Laboratory Limits (µg/kg)[b]		
				DL	LOD	LOQ
ALS-Kelso	Perfluorooctanoic acid (PFOA)	335-67-1	1,260[a]	0.18	0.4	1.0
ALS-Kelso	Perfluorononanoic acid (PFNA)	375-95-1	N/A	0.18	0.4	1.0
ALS-Kelso	Perfluoroheptanoic acid (PFHpA)	375-85-9	N/A	0.22	0.6	1.0
ALS-Kelso	Perfluorobutanesulfonate (PFBS)	375-73-5	1,260,000[a]	0.17	0.4	1.0
ALS-Kelso	Perfluorohexane sulfonate (PFHxS)	355-46-4	N/A	0.17	0.4	1.0
ALS-Kelso	Perfluorooctane sulfonate (PFOS)	1763-23-1	1,260[a]	0.17	0.4	1.0
TestAmerica	Perfluorooctanoic acid (PFOA)	335-67-1	1,260[a]	0.102	0.300	0.500
TestAmerica	Perfluorononanoic acid (PFNA)	375-95-1	N/A	0.083	0.300	0.500
TestAmerica	Perfluoroheptanoic acid (PFHpA)	375-85-9	N/A	0.088	0.300	0.500
TestAmerica	Perfluorobutanesulfonate (PFBS)	375-73-5	1,260,000[a]	0.103	0.300	0.400
TestAmerica	Perfluorohexane sulfonate (PFHxS)	355-46-4	N/A	0.118	0.300	0.500
TestAmerica	Perfluorooctane sulfonate (PFOS)	1763-23-1	1,260[a]	0.126	0.300	0.500

[a] Project action limits for soils and sediment are the resident risk-based screening levels determined using the U.S. Environmental Protection Agency (EPA) regional screening level (RSL) calculator and the June 2017 EPA RSL table.
[b] Achievable laboratory limits are updated on a regular basis and are subject to change.
CAS = Chemical Abstracts Service.
DL = Detection limit.
LOD = Limit of quantitation.
LOQ = Limit of detection.
N/A = Not available.

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QAPP Worksheet #17 – Sampling Design and Rationale

The site inspections (SIs) will be conducted in general accordance with the U.S. Environmental Protection Agency's Triad Approach, incorporating data into the sampling approach and updating the conceptual site model as the SI proceeds. Potential perfluorooctane sulfonate/perfluorooctanoic acid (i.e., PFOS/PFOA) source areas were identified in the preliminary assessments. The specific planned approach and rationale for each of the Installation SIs are detailed in the Installation-specific SI Work Plans.

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QAPP Worksheet #18 – Sampling Locations and Methods (all media)

The sample locations and methods are included in the Installation-specific Site Inspection (SI) Work Plan (WP).

Sample identifiers for associated quality control samples are discussed in the SI WP.

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QAPP Worksheets #19 and #30 – Analytical Method Requirements Table and Sample Containers, Preservation, and Hold Times

Analyte	Matrix	Method	Container(s) (number, size, and type per sample)	Preservation	Sample Holding Time	Accreditation Number/Expiration Date
PFOS/PFOA	Water	EPA Method 537, revision 1.1 SOP LCP-PFCDOD	Two 60-mL HDPE containers with HDPE cap	Cool to 4°C ±2°; Trizma preservative for aqueous samples with residual chlorine	14 days to extraction 28 days to analysis	ALS-Kelso = 65188/ February 28, 2018
	Solids	EPA Method 537, revision 1.1 SOP LCP-PFCDOD	One 125-mL HDPE container with HDPE cap	Cool to 4°C ±2°	28 days to extraction 28 days to analysis	ALS-Kelso = 65188/ February 28, 2018
	Water	EPA Method 537, revision 1.1 SOP 537_Modified/WS-LC-0025	Two 250-mL HDPE containers with HDPE cap	Cool to 4°C ±2°; Trizma preservative for aqueous samples with residual chlorine	14 days to extraction 28 days to analysis	TestAmerica = L2468/ January 20, 2018
	Solids	EPA Method 537, revision 1.1 SOP 537_Modified/WS-LC-0025	One 4-oz. HDPE container with HDPE cap	Cool to 4°C ±2°	28 days to extraction 28 days to analysis	TestAmerica = L2468/ January 20, 2018

EPA = U.S. Environmental Protection Agency.
HDPE = High-density polyethylene.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.
SOP = Standard Operating Procedure.

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QAPP Worksheet #20 – Field Quality Control Sample Summary Table

Field duplicate samples, field blanks, equipment rinsates, and field reagent blanks will be submitted to the analytical laboratory to provide a means to assess the quality of the data resulting from the field sampling program. Field blank samples will be analyzed to check for procedural contamination and ambient conditions at the site that may have caused sample contamination. Duplicate samples will be submitted to provide a quality assurance (QA) check on analytical procedures and results. The required quality control (QC) samples and associated frequencies are provided in the Installation-specific Site Inspection (SI) Work Plan.

Field Blanks. Field blanks are QA/QC samples intended to determine if any of the water used during the field investigation contains detectable concentrations of any analytes that may impact the quality of the samples. Field blanks are samples of the source of water used for decontamination. Field blanks will be analyzed for the same parameters as the original samples of interest by the fixed-base laboratory. If more than one source of water is used in the decontamination process, a sample of each (e.g., potable water and deionized water) should be analyzed. Assuming that water supplies remain constant, one set of field blank samples (i.e., one sample of potable water and one sample of deionized water) will be collected during the initial sampling event. If the source of potable water and/or deionized water supply is changed, an additional field blank sample will be collected for analysis at the first event in which the new water supply is used.

Field blanks will be assigned sample identifiers beginning with the letters 'FB' followed by two digits sequentially assigned (i.e., the first trip blank collected on the project will be given the sample identifier 'FB-01'; the second, 'FB-02'; etc.). The chain-of-custody (CoC) and field logbook will clearly identify the source of the water sampled (e.g., potable water source or deionized water).

Equipment Rinsates. Equipment rinsates are used as a measure of the effectiveness of the decontamination process. Equipment rinsates are samples of the final analyte-free water rinse from equipment cleaning and are submitted to the fixed-base laboratory for analysis. The equipment rinsates will be analyzed for the same analytes as the primary samples that are collected. Samples will be collected from reusable sampling equipment at a 10% frequency for fixed-base confirmation analysis of all samples collected with reusable equipment in compliance with the ANG Investigation Guidance (ANG 2009).

Equipment rinsates will be assigned sample identifiers beginning with the letters 'ER' followed by two digits sequentially assigned (i.e., the first equipment rinsate collected on the project will be given the sample identifier 'ER-01'; the second, 'ER-02'; etc.). The field logbook will clearly identify the sample(s) collected with the reusable equipment immediately prior and/or immediately following collection of the equipment rinsate sample, and the CoC will clearly identify the medium with which the equipment rinsate is associated (e.g., 'groundwater rinsate' when the equipment rinsate was collected from groundwater sampling equipment, or 'soil rinsate' when the equipment rinsate was collected from direct-push technology soil sampling equipment, etc.).

Field Reagent Blanks. The purpose of the field reagent blank is to determine if method analytes or other interferences are introduced throughout the entire shipping, sampling, and analyzing process. At the laboratory, the field reagent blank sample bottle will be filled with reagent water and preservatives, sealed, and shipped to the sampling site along with the sample bottles. For each field reagent blank shipped, an empty sample bottle (no preservatives) must also be shipped. At the sampling site, the sampler must open the shipped field reagent blank and pour the preserved reagent water into the empty shipped sample bottle, seal it, and then label this bottle as the field reagent blank. The field reagent blank

is shipped back to the laboratory along with the samples and analyzed to ensure that perfluorooctane sulfonate (i.e., PFOS) and perfluorooctanoic acid (i.e., PFOA) were not introduced into the sample during sample collection/handling. One field reagent blank will be collected and analyzed for each SI project. Because the groundwater samples are not coming from a municipal water source that involves water treatment and, therefore, no chlorination of the aqueous sample matrix, it may be determined that the field reagent blank is not required, except for purposes of determining potential impacts on the potable source used during the equipment decontamination process. In this case, the field reagent blank would only be applied to the potable source blank collected during sample collection and not the field samples during data validation.

Field Duplicates. Field duplicates are used to assess the precision of sampling techniques and provide checks on laboratory and field procedures. Field duplicates will be collected at a 10% frequency for fixed-base confirmation analysis of all samples in compliance with the ANG Investigation Guidance (ANG 2009).

MS/MSD Samples. Matrix spike (MS) and matrix spike duplicate (MSD) samples are, technically, laboratory QC samples, as they are samples from a specific medium that are spiked at the laboratory with known quantities of analytes. However, these samples are discussed within this field QC section as they require additional sample volumes to be collected in the field. MS and MSD samples are used to determine the accuracy and precision of the laboratory analyses as well as matrix interferences. Data from MS and MSD sample recoveries provide percentage recovery information so the laboratory can evaluate the accuracy and precision of its measurements. MS and MSD samples are equal portions of a single initial sample that have been spiked with specific analytes in known quantities; results of analyses must meet certain laboratory requirements to be acceptable. The total number of MS and MSD samples submitted to the fixed-base laboratory will be at a frequency of 1 set per (up to) 20 samples (e.g., 5% frequency) in compliance with the ANG Investigation Guidance (ANG 2009). If there is insufficient sample volume available for MS/MSD analyses, the laboratory should analyze laboratory control sample (LCS) duplicates in addition to the regular LCS analysis to ensure there is a precision measurement associated with the data.

Additional volumes sent for MS and MSD analyses will be submitted under the same sample identifier as the primary sample with a notation on the CoC that additional volumes were submitted for MS and MSD analyses.

QAPP Worksheet #21 – Field SOPs Reference Table

The following list of Leidos Energy, Environmental Science and Engineering Field Technical Procedures includes all Standard Operating Procedures (SOPs) that may apply during field activities. A copy of each SOP is provided on the Leidos internal Quality Assurance website, accessible to Leidos employees. Leidos' referenced SOPs can be made available to any stakeholder upon request.

Number	Title	Revision Number	Revision Date
ESE FTP-105	Field Reconnaissance	0	01/31/15
ESE FTP-175	Field Measurement of Physical and Topographical Features	0	01/31/15
ESE FTP-180	Global Positioning System Data Collection	0	01/31/15
ESE FTP-400	Equipment Decontamination	0	01/31/15
ESE FTP-525	Soil Sampling	0	01/31/15
ESE FTP-600	Groundwater Sampling from Wells	0	01/31/15
ESE FTP-602	Water Level Measurement in Wells	0	01/31/15
ESE FTP-603	Surface Water Sampling	0	01/31/15
ESE FTP-625	Sample Chain of Custody	1	02/04/15
ESE FTP-650	Labeling, Packaging and Shipping Environmental Samples	0	01/31/15
ESE FTP-651	Hazardous Materials/Dangerous Goods Shipping	0	01/31/15
ESE FTP-655	Analytical Method Selection for Environmental Samples	0	01/31/15
ESE FTP-691	Composite Procedures	0	01/31/15
ESE FTP-750	Field Measurement Procedures	0	01/31/15
ESE FTP-1215	Field Activity Documentation	1	02/04/15
ESE FTP-1220	Documenting and Controlling Field Changes to Approved Work Plans	0	01/31/15
ESE FTP-1225	Field Demobilization Checklist for Investigative Derived Wastes	0	01/31/15

ESE = Environmental Science and Engineering.
FTP = Field Technical Procedure.

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QAPP Worksheet #22 – Field Equipment Calibration, Maintenance, Testing, and Inspection Table

Field Equipment	Required Action	Frequency	Acceptance Criteria	Corrective Action	Responsible Party	SOP Reference	Note
Water Quality Meter	Visual inspection, calibration/ verification	Daily	Manufacturer's guidance	Re-calibration by operator or return to equipment vendor	Leidos Field Team Lead	Manufacturer's Operating Manual	Check batteries, carry extra batteries, and replace as needed. Rinse out flow-through cell
Water Level Indicator	Visual inspection, verification	Daily	+/- 0.01 ft	Correction by operator or return/replace with functional meter	Leidos Field Team Lead	Manufacturer's Operating Manual	Check batteries, carry extra batteries, and replace as needed. Decontaminate meter after each monitoring location
Photoionization Detector	Visual inspection, calibration/ verification	Daily	Manufacturer's guidance	Re-calibration by operator or return to equipment vendor	Leidos Field Team Lead	Manufacturer's Operating Manual	Check charge on battery and re-charge as needed
Monitoring Well Sampling Pump	Visual inspection, manufacturer-recommended field checks	Daily	Pump operation at desired flow rate	Correction by operator or return/replace with functional pump	Leidos Field Team Lead	Manufacturer's Operating Manual	Decontaminate prior to use and after each sample location
Direct-push Drilling Machine (if Leidos self-performs)	Visual inspection, manufacturer-recommended field checks	Daily	Manufacturer's guidance	Correction by operator or return to shop for required repairs	Leidos Lead Equipment Operator	Manufacturer's Operating Manual	
Fork Lift	Visual inspection, manufacturer-recommended field checks	Daily	Manufacturer's guidance	Correction by operator or return to shop for required repairs	Leidos Lead Equipment Operator	Manufacturer's Operating Manual	
Direct-push and Other Drilling Rigs	Subcontracted Equipment: Subcontractor shall be responsible for care, maintenance, repair, and operation of required equipment						
Surveying Equipment	Subcontracted Equipment: Subcontractor shall be responsible for care, maintenance, repair, and operation of required equipment						

SOP = Standard Operating Procedure.

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QAPP Worksheet #23 – Analytical Laboratory SOP References Table

The Laboratory Standard Operating Procedures for U.S. Environmental Protection Agency modified Method 537, revision 1.1 analyses of aqueous and solid matrices are proprietary, but may be available upon request if appropriate written permissions are obtained. The laboratory must meet the requirements of the U.S. Department of Defense (DoD) Quality Systems Manual (QSM), version 5.1, Table B-15 for the analysis of per- and polyfluorinated substances compounds, even if the laboratory's current scope of accreditation is for DoD QSM, version 5.0.

Laboratory SOP Number	Title, Revision Date, and/or Number	Definitive or Screening Data	Matrix and Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work? (Y/N)
LCP-PFCD0D	Perfluoroalkyl Substances by High Performance Liquid Chromatography/Tandem Mass Spectrometry for DoD Projects: Revision 0; 06/02/17	Definitive	Water/Soil	LC/MS/MS	ALS-Kelso	N
WS-LC-0025	Per- and Polyfluorinated Substances in Water, Soils, Sediments and Tissue; Revision 2.7; 09/20/17	Definitive	Water/Soil	LC/MS/MS	TestAmerica-Sacramento	N

Note: Laboratories SOPs are continuously reviewed and updated; therefore, the revision number and date associated with any laboratory SOP are subject to change.
DoD = U.S. Department of Defense.
LC/MS/MS = Liquid chromatography/tandem mass spectrometry.
SOP = Standard Operating Procedure.

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QAPP Worksheet #24 – Analytical Instrument Calibration Table

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action	Person Responsible for Corrective Action	SOP Reference
LC/MS/MS	ICAL	At instrument set-up and after ICV or CCV failure, prior to sample analysis	The isotopically labeled analog of an analyte (extracted internal standard analyte) must be used for quantitation if commercially available (isotope dilution quantitation) If a labeled analog is not commercially available, the extracted internal standard analyte with the closest retention time to the analyte must be used for quantitation (internal standard quantitation) S/N Ratio: ≥10:1 for all ions used for quantification For analytes having a promulgated standard, (e.g., health advisory levels for PFOS and PFOA), the qualitative (confirmation) transition ion must have an S/N ratio of ≥3:1 The percent relative standard deviation of the response factors for all analytes must be <20%. Linear or nonlinear calibrations must have r2 ≥0.99 for each analyte. Analytes must be within 70 to 130% of their true value for each calibration standard	Correct problem, then repeat ICAL	Laboratory analyst	DoD QSM, version 5.1, Table B-15 Laboratory SOP LCP-PFCDOD (ALS-Kelso) Laboratory SOP WS-LC-0025 (TestAmerica)
	ICAL, CCV, and spiking standards	All analytes	Standards containing both branched and linear isomers must be used when commercially available If not available, the total response of the analyte must be integrated (i.e., accounting for peaks that are identified as linear and branched isomers) and quantitated using a calibration curve that includes the linear isomer only for that analyte (e.g., PFOA)	N/A Standards containing both branched and linear isomers are to be used during method validation to ensure the total response is quantitated for that analyte	Laboratory analyst	DoD QSM, version 5.1, Table B-15 Laboratory SOP LCP-PFCDOD (ALS-Kelso) Laboratory SOP WS-LC-0025 (TestAmerica)
	ISC	Prior to analysis and at least every 12 hr	Analyte concentrations must be at LOQ; concentrations must be within ±30% of their true values	Correct problem, rerun ISC. If problem persists, repeat ICAL	Laboratory analyst	DoD QSM, version 5.1, Table B-15 Laboratory SOP LCP-PFCDOD (ALS-Kelso) Laboratory SOP WS-LC-0025 (TestAmerica)

QAPP Worksheet #24 – Analytical Instrument Calibration Table (continued)

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action	Person Responsible for Corrective Action	SOP Reference
	ICV	Once after each ICAL, analysis of a second source standard prior to sample analysis	±30% of the true value	Correct problem, rerun ICV. If problem persists, repeat ICAL	Laboratory analyst	DoD QSM, version 5.1, Table B-15 Laboratory SOP LCP-PFCDOD (ALS-Kelso) Laboratory SOP WS-LC-0025 (TestAmerica)
	CCV	Prior to analysis, after every 10 field samples, and at the end of the analytical sequence	Concentration of analytes must range from the LOQ to the mid-level calibration concentration ±30% of the true value	Immediately analyze two additional consecutive CCVs. If both pass, samples may be reported without reanalysis. If either fails, or if two consecutive CCVs cannot be run, perform corrective action(s) and repeat CCV and all associated samples since last successful CCV Alternately, recalibrate if necessary; then reanalyze all associated samples since the last acceptable CCV	Laboratory analyst	DoD QSM, version 5.1, Table B-15 Laboratory SOP LCP-PFCDOD (ALS-Kelso) Laboratory SOP WS-LC-0025 (TestAmerica)
	Tune	Prior to ICAL and after any mass calibration or maintenance is performed	Instrument manufacturer's instructions	Retune instrument. If the tuning will not meet acceptance criteria, an instrument mass calibration must be performed and the tuning redone	Laboratory analyst	DoD QSM, version 5.1, Table B-15 Laboratory SOP LCP-PFCDOD (ALS-Kelso) Laboratory SOP WS-LC-0025 (TestAmerica)

CCV = Continuing calibration verification.
DoD = U.S. Department of Defense.
ICAL = Initial calibration.
ICV = Initial calibration verification.
ISC = Initial sensitivity check.
LC/MS/MS = Liquid chromatography/tandem mass spectrometry.
LOQ = Limit of quantitation.
N/A = Not applicable.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.
QSM = Quality Systems Manual.
S/N = Signal to noise.
SOP = Standard Operating Procedure.

QAPP Worksheet #25 – Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table

Instrument/Equipment	Maintenance Activity	Testing Activity	Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference
LC/MS/MS (ALS-Kelso)	Per vendor's instructions	Per vendor's instructions	Per vendor's instructions	As needed	Mass calibrations, tune checks, ICAL, and CCVs pass method specifications	Perform additional maintenance prior to instrument calibration or calibration verification	Laboratory analyst and/or through vendor contact	LCP-PFCDOD
LC/MS/MS (TestAmerica)	Replace columns as needed, check eluent reservoirs	Sensitivity check	Instrument performance and sensitivity	Daily or as needed	CCV pass criteria	Recalibrate	TestAmerica chemist	WS-LC-0025

CCV = Continuing calibration verification.
ICAL = Initial calibration.
LC/MS/MS = Liquid chromatography/tandem mass spectrometry.
SOP = Standard Operating Procedure.

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QAPP Worksheets #26 and #27 – Sample Handling, Custody, and Disposal

Sampling organization: Leidos
Laboratory: To be determined
Method of sample delivery (shipper/carrier): United Parcel Service, Federal Express, or Leidos
Number of days from reporting until sample disposal: 90 days

Activity	Organization and Title or Position of Person Responsible for the Activity	SOP Reference
Sample labeling	Leidos Sampling Technician	ESE FTP-650
Chain-of-custody form completion	Leidos Sampling Technician	ESE FTP-625
Packaging	Leidos Sampling Technician	ESE FTP-650
Shipping coordination	Leidos Sampling Technician	ESE FTP-650
Sample receipt, inspection, and log-in	Laboratory personnel	SOP SMO-GEN (ALS-Kelso)
Sample custody and storage	Laboratory personnel	SOP SMO-SCOC (ALS-Kelso)
Sample disposal	Laboratory personnel	SOP SMO-DISP (ALS-Kelso)
Sample receipt, inspection, and log-in Sample custody and storage	Laboratory personnel	SOP SW-QA-0003/WS-QA-005 (TestAmerica)
Sample disposal	Laboratory personnel	SOP WS-EHS-001 (TestAmerica)

ESE = Environmental Science and Engineering.
FTP = Field Technical Procedure.
SOP = Standard Operating Procedure.

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QAPP Worksheet #28 – Analytical Laboratory Quality Control Sample Table (PFOS/PFOA in Waters and Soils)

Matrix: Water and soil					
Analytical Group: PFOS/PFOA					
Concentration Level: All					
Analytical Method/SOP Reference: EPA Method 537, revision 1.1; DoD QSM, version 5.1, Table B-15					
Analytical Organization: ALS-Kelso, TestAmerica-Sacramento					
QC Sample	**Frequency/Number**	**QC Acceptance Limits**	**Corrective Action**	**Person(s) Responsible for Corrective Action**	**Measurement Performance Criteria**
ISC	Prior to analysis and at least once every 12 hr	Analyte concentrations at LOQ must be within ±30% of true value	Correct problem, rerun ISC. If problem persists, repeat ICAL	Laboratory analyst	See Worksheet #12
Instrument Blank	Immediately following the highest standard analyzed and daily prior to sample analysis	No analytes detected >1/2 LOQ	If acceptance criteria are not met after the highest calibration standard, calibration must be performed using a lower concentration for the highest standard and/or additional instruments blanks must be analyzed until acceptance criteria are met. Additional samples shall not be analyzed until acceptance criteria are met	Laboratory analyst	See Worksheet #12
Extraction Internal Standards	Every field sample, standard, blank, and QC sample	50 to 150% of true value	Reprepare and reanalyze as needed. Greater dilution may be required. If reanalysis confirms failures, narrate and qualify associated data	Laboratory analyst	See Worksheet #12
Injection Internal Standards	Every field sample, standard, blank, and QC sample	-50 to +50% of peak area of ICAL midpoint or CCV	Reanalyze. If reanalysis fails, either analysis may be reported with the appropriate flags	Laboratory analyst	See Worksheet #12

QAPP Worksheet #28 – Analytical Laboratory Quality Control Sample Table (PFOS/PFOA in Waters and Soils) (continued)

Matrix: Water and soil					
Analytical Group: PFOS/PFOA					
Concentration Level: All					
Analytical Method/SOP Reference: EPA Method 537, revision 1.1; DoD QSM, version 5.1, Table B-15					
Analytical Organization: ALS-Kelso, TestAmerica-Sacramento					
QC Sample	**Frequency/Number**	**QC Acceptance Limits**	**Corrective Action**	**Person(s) Responsible for Corrective Action**	**Measurement Performance Criteria**
Surrogate Spike	Per sample (including MS/MSD, LCS, and blanks)	70 to 130%	Re-extract sample. If the surrogate compound fails high, and there are no positive detections, the sample can be reported Note: Surrogates are not a DoD QSM, version 5.1 requirement because the isotope dilution method uses the extraction internal standard for analyte quantitation. The use of surrogates will be optional, depending on the laboratory method requirements	Laboratory analyst	See Worksheet #12
Method Blank	1 per 20 field samples	No analytes detected >1/2 LOQ or >1/10 the amount measured in any sample or 1/10 the regulatory limits, whichever is greater	Re-extract to confirm detection, or report if the analyte present in the method blank is not detected in the sample	Laboratory analyst	See Worksheet #12
LCS	1 per 20 field samples	Laboratory analyte recovery in-house limits; RPD ≤30%	Re-extract LCS and associated samples. Analytes that fail high and are non-detect in the samples can be reported	Laboratory analyst	See Worksheet #12

QAPP Worksheet #28 – Analytical Laboratory Quality Control Sample Table (PFOS/PFOA in Waters and Soils) (continued)

Matrix: Water and soil					
Analytical Group: PFOS/PFOA					
Concentration Level: All					
Analytical Method/SOP Reference: EPA Method 537, revision 1.1; DoD QSM, version 5.1, Table B-15					
Analytical Organization: ALS-Kelso, TestAmerica-Sacramento					
QC Sample	**Frequency/Number**	**QC Acceptance Limits**	**Corrective Action**	**Person(s) Responsible for Corrective Action**	**Measurement Performance Criteria**
MS/MSD	1 per 20 samples	Laboratory LCS analyte recovery in-house limits; RPD ≤30%	Evaluation in conjunction with LCS results	Laboratory analyst	See Worksheet #12
Post-Spike Sample	Only applies to results <LOQ in aqueous samples prepared by serial dilution method. Spiking must occur at the LOQ	70 – 130% recovery	Reanalyze at higher dilutions until criterion is met	Laboratory analyst	See Worksheet #12

CCV = Continuing calibration verification.
DoD = U.S. Department of Defense.
EPA = U.S. Environmental Protection Agency.
ICAL = Initial calibration.
ISC = Instrument sensitivity check.
LCS = Laboratory control sample.
LOQ = Limit of quantitation.
MS = Matrix spike.
MSD = Matrix spike duplicate.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.
QC = Quality control.
QSM = Quality Systems Manual.
RPD = Relative percent difference.
SOP = Standard Operating Procedure.

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QAPP Worksheet #29 – Project Documents and Records Table

Note: All referenced Leidos Environmental Science and Engineering (ESE) procedures are available on the Leidos internal Quality Assurance (QA) website, accessible to Leidos employees. Leidos' referenced procedures can be made available to any stakeholder upon request.

A. Project Records

Per ESE Procedure A17.1, project records will be kept by the Leidos Project Manager (PM) to document QA/quality control (QC) activities and provide support for possible evidential proceedings. Project files include:

1) Communications:
   a) Internal, and
   b) External.

2) QA/QC:
   a) Procedures,
   b) Field project planning and Readiness Review,
   c) Chain-of-custody (CoC),
   d) Audit reports,
   e) Field Change Request forms,
   f) Nonconformance/Corrective Action Reports,
   g) Data quality acceptance, and
   h) Document Review Records.

3) Technical information:
   a) Analytical data,
   b) Field data,
   c) Site logbook,
   d) Field sampling logbooks,
   e) Field data record forms,
   f) Graphic resources,
   g) Calculations/evaluations, and
   h) Regulatory compliance.

4) Project management:
   a) Project schedule,
   b) Budget, and
   c) Site database information.

5) Health and safety:
   a) Plans/procedures,
   b) Audits reports documents,
   c) Plans,
   d) Reports, and
   e) Relevant publications.

Copies of all records will be maintained by Leidos for the length of the project. The Leidos PM will ensure that records are properly stored and retrievable.

A.1 Laboratory Submittals

The laboratory will confirm sample receipt and log-in information through return of a copy of the completed CoC and laboratory Cooler Receipt Checklist and confirmation of the laboratory's analytical log-in (Letter of Receipt) to Leidos within 2 days of sample receipt.

The laboratory will provide definitive analytical deliverables within a routine analytical service turnaround of 21 calendar days for complete data packages. Electronic data deliverables (EDDs) will be provided within 10 business days as standard practice, with rapid turn a possibility for select samples. 'Definitive Deliverables' will be provided in data packages consistent with requirements listed in the U.S. Department of Defense Quality Systems Manual, version 5.1 (DoD 2017) and applicable portions of U.S. Environmental Protection Agency Method 537, revision 1.1 (EPA 2009), including initial and continuing calibration records and raw data. Uniform Federal Policy Quality Assurance Project Plan Worksheets #12, #24, and #28 include required components of the analytical data package. EDDs will include information identified by and a format consistent with that required by the most recent version of the Environmental Resources Program Information Management System (ERPIMS). In all, the laboratory will provide:

- Full data packages (including raw data) in portable document file (PDF) format.
- ERPIMS EDD files.
- An Excel spreadsheet with sample results. The laboratory may use their basic EDD format, which should include, at a minimum, sample identifiers, analytical method, dilution factor, analyte, results, units, result qualifier, detection limit, limit of detection, limit of quantitation, dilution factor, and sample type (reanalysis, dilution, etc.).

A.2 Leidos Field Documentation

Field documentation from logbooks, data collection sheets, digital photography, correspondence, and CoC forms will comprise the bulk of the field documentation associated with the SI. The procedures for field documentation will be performed in accordance with ESE Field Technical Procedure-1215. Digital data will be accumulated and maintained on the Leidos project directory and electronic record retention system tape backup in accordance with ESE Procedure Data Management-03. All data will be stored until project activities are complete. Thereafter, all data will be maintained for 7 years in accordance with Leidos ESE QA Program Standard Operating Procedure ESE A17.1, Revision 1.

A.3 Internal Document Review

Leidos' process for document review (ESE A3.1) includes the assignment of an Independent Technical Review (ITR) lead. The ITR lead will work with the PM to ensure ITRs of all deliverables are completed. The ITR-assigned personnel will focus on identifying and correcting deficiencies relating to technical issues; compliance with the Statement of Objectives (NGB 2017); and compliance with relevant specifications, laws, and regulations. In addition, ITR-assigned personnel will ensure the clarity of the document and use of proper punctuation, syntax, and grammar. Verification that deficiencies have been addressed properly will be conducted by the ITR lead following revisions.

B. Reports and Other Project Deliverables

Final deliverable submittals to the Air National Guard (ANG) will include native files and the final document PDF (in parts, if necessary) for inclusion in the online Administrative Record, in accordance with Policy A7O 15-01, *Policy for Delivery of Final Electronic Deliverables* (ANG 2015).

B.1 Site Inspection Reports

A Site Inspection (SI) Report for each Installation will be prepared in draft, draft final, and final versions. Each draft report will be provided to ANG, the Installation Environmental Manager, and the surveillance and oversight contractor for review and comment. Following appropriate revisions based on ANG review, the draft final report will be submitted for regulatory review and comment. The final report will be distributed to stakeholders following appropriate revisions.

B.2 Monitoring Well Inventory

Leidos will inspect each well installed or sampled for perfluorooctane sulfonate/perfluorooctanoic acid (i.e., PFOS/PFOA) and report any changes prior to the end of the period of performance, in accordance with Policy A7O 11-01, *Collection of Digital Spatial Data for Monitoring Wells During Environmental Investigation at Air National Guard Sites*, and Policy A7O 14-01 (ANG 2011), *Requirements for Geospatial Data Deliverables* (ANG 2014).

B.3 Environmental Resources Program Information Management System

Leidos will ensure that the laboratory provides appropriate data for inclusion in ERPIMS and will electronically submit the required deliverable within 70 days of sampling, in accordance with Policy A7O 10-01, *Environmental Resources Program Information Management System (ERPIMS)* (ANG 2010). Additional time may be required to resolve any comments received by the ERPIMS Help Desk. If the goal of 70 days will not be met for any reason, Leidos will inform the ANG Program Manager and provide the rationale for delay as required by the guidance.

C. Geographic Information System Data Deliverable

A comprehensive geospatial data deliverable for the project will be prepared in accordance with Policy A7O 14-01 (ANG 2014). The geospatial data deliverable will initially be submitted to the ANG Program Manager in conjunction with the Draft SI Report prepared under this task order. The ANG Program Manager will transmit the draft deliverable to the GeoBase office for review and acceptance. If required, a revised (final) submittal will be prepared by Leidos in conjunction with the Final SI Report. This revised (final) submittal will incorporate any revisions due to review comments from the GeoBase team and/or any revisions to the SI Report affecting the geospatial data.

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QAPP Worksheets #31, #32, and #33 – Assessments and Corrective Action Responses

Assessment Response and Corrective Action

Assessment Type	Individual(s) Notified of Findings (name, title, organization)	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response (name, title, organization)	Timeframe for Response
Analytical DQA	Leidos PM Laboratory PM	Nonconformance Reports and Corrective Action Reports should be issued immediately if required. DQA Report should be issued as soon as all data validation is completed for a particular phase of the project	Nonconformance Report (if required) Corrective Action Report (if required)	Leidos Corporate QA Manager/ Project QA Officer	2 weeks
Field Surveillance	Leidos PM	Immediately	Nonconformance Report (if required) Corrective Action Report (if required)	Leidos Corporate QA Officer	2 weeks

DQA = Data quality assessment.
PM = Project Manager.
QA = Quality control.

QAPP Worksheets #31, #32, and #33 – Assessments and Corrective Action Responses (continued)

Assessments

Type of Report	Frequency	Project Delivery Date(s)	Person(s) Responsible for Report Preparation	Report Recipient(s)
Data Validation Report	Per sample delivery group	Within 3 weeks after receipt of Level IV data package	Leidos Project Chemist, Leidos Project QA Officer	Leidos PM
DQA	With each phase of the project	Issued as soon as all data validation is completed for a particular phase of the project	Leidos Project Chemist, Leidos Project QA Officer	Leidos PM
Major Analysis Problem Identification (internal memorandum)	When persistent analysis problems are detected	Immediately	Leidos Project Chemist, Leidos Project QA Officer	Leidos PM
MPR	Monthly for duration of the project	Monthly	Leidos PM	NGB/A4OR Program Manager
Laboratory QA Report	When significant plan deviations result from unanticipated circumstances	Immediately	Laboratory PM	Leidos Project Chemist, Leidos Project QA Officer, and Leidos QA Manager, if needed

DQA = Data quality assessment.
MPR = Monthly Progress Report.
NGB/A4OR = National Guard Bureau Operations Division Restoration Branch.
PM = Project Manager.
QA = Quality assurance.

QAPP Worksheet #34 – Data Verification and Validation Inputs

Item	Description	Verification (completeness)	Validation (conformance to specifications in the UFP-QAPP)
	Analytical Data Package		
1	Cover sheet (laboratory identifying information)	X	X
2	Case narrative and definition of qualifiers	X	X
3	Sample receipt records	X	X
4	Field sample and field QC sample results (Form Is)	X	X
5	Blanks summaries	X	X
6	MS/MSD summaries	X	X
7	LCS summaries	X	X
8	Surrogate recovery summaries (if required)	X	X
9	Internal standard recovery summaries	X	X
10	Initial and continuing calibration summaries	X	X
11	All other information as defined in Worksheets #12, #24, and #28	X	X
12	Analytical raw data for all data (i.e., calibrations, QC, and samples)	X	NA[a]
13	Required laboratory signatures	X	X
14	Nonconformance Reports/Corrective Action Reports (if applicable)	X	X
	Field Records		
15	Field logbooks	X	X
16	Equipment calibration records	X	X
17	CoC Forms	X	X
18	Drilling logs	X	X
19	Field change requests (if required)	X	X
20	Field corrective action reports (if required)	X	X

[a] Data packages will be verified to ensure that raw data are included, however; because no calculations will be performed as part of the validation process, raw data are not a component of data validation.
Note: Verification and validation only apply to perfluorooctane sulfonate and perfluorooctanoic acid because they are the critical chemicals of concern of the six compounds identified in the third Unregulated Contaminant Monitoring Rule (UCMR3) (EPA 2012). The other four compounds identified in UCMR3 (EPA 2012) are included for informational purposes only.
CoC = Chain-of-custody.
LCS = Laboratory control sample.
MS = Matrix spike.
MSD = Matrix spike duplicate.
NA = Not applicable.
QC = Quality control.
UFP-QAPP = Uniform Federal Policy Quality Assurance Project Plan.

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QAPP Worksheet #35 – Data Verification Procedures

Records Reviewed	Requirement Document	Process Description	Responsible Person, Organization
Field Logbook	UFP-QAPP and Leidos ESE FTP-1215 SOP	Verify that records are present and complete for each day of field activities. Verify that all planned samples, including field QC samples, were collected and that sample collection locations are documented. Verify that meteorological data were provided for each day of field activities. Verify that changes/exceptions are documented and were reported in accordance with requirements. Verify that any required field monitoring was performed and results are documented	Project Field Manager PM Project QA Officer
Sample Receipt and CoC	UFP-QAPP, Leidos ESE FTP-625 SOP, and laboratory SOPs	The condition of shipping coolers and enclosed sample containers will be documented upon receipt at the analytical laboratory. This documentation will be accomplished using a cooler receipt checklist. A Sample Receipt Confirmation Report will be transmitted to Leidos within 48 hr of sample receipt. The original completed checklist will be transmitted with the final data package	Documentation of sample receipt and generation of sample receipt checklist – Laboratory PM Review of Sample Receipt Confirmation Report to ensure samples were logged in correctly – Leidos Project Chemist
Laboratory Data Package	UFP-QAPP, laboratory SOPs, and Leidos ESE Procedure Data Management-05	Verify data package for completeness, as defined in the UFP-QAPP, for the following: • cover sheet with identifying information; • case narrative; • sample receipt information and CoC; • sample results; • blanks summaries; • MS/MSD summaries; • internal standard summaries; • LCS summaries; • surrogate recovery summaries (if required); • initial and continuing calibration summaries; • All other requirements specified in Worksheets #12, #24, and #28; • analytical raw data; and • required laboratory signatures	**Before release from laboratory –** Laboratory PM or QA Officer **Upon receipt –** Leidos Project Chemist

QAPP Worksheet #35 – Data Verification Procedures (continued)

Records Reviewed	Requirement Document	Process Description	Responsible Person, Organization
Nonconformance Reports/Corrective Action Reports (if applicable)	UFP-QAPP, laboratory SOPs, and the appropriate SW-846 method(s)	Verify that corrective action was implemented according to plan	Leidos Project Chemist, Leidos Project QA Officer, and Leidos Corporate QA Manager

Note: All referenced Leidos ESE procedures are available on the Leidos internal QA website, accessible to Leidos employees. Leidos' referenced procedures can be made available to any stakeholder upon request.
Note: The data verification process will include verification that all six compounds identified in the third Unregulated Contaminant Monitoring Rule (EPA 2012) are reported; however, data review against QA/QC acceptance criteria will be limited to perfluorooctane sulfonate and perfluorooctanoic acid because they are the critical chemicals of concern.
CoC = Chain-of-custody.
ESE = Environmental Science and Engineering.
FTP = Field Technical Procedure.
LCS = Laboratory control sample.
MS = Matrix spike.
MSD = Matrix spike duplicate.
QA = Quality assurance.
QC = Quality control.
PM = Project Manager.
SOP = Standard Operating Procedure.
UFP-QAPP = Uniform Federal Policy Quality Assurance Project Plan.

QAPP Worksheet #36 – Data Validation Procedures

Data Validator	Leidos
Analytical Group/Method	PFOS/PFOA by laboratory SOP; EPA Method 537, revision 1.1; and DoD QSM, version 5.1 requirements
Data Deliverable Requirements	ERPIMS EDD files Excel spreadsheet with sample results. The laboratory may use their basic EDD format, which should include, at a minimum, sample identifiers, analytical method, dilution factor, analyte, results, units, result qualifier, DL, LOD, LOQ, dilution factor, and sample type (reanalysis, dilution, etc.) Level IV data package on compact disc (includes all QA/QC and calibration summaries as well as raw data)
Analytical Specifications/Measurement Performance Criteria	QAPP Worksheets #12, #15, #24, and #28; Laboratory's SOPs
Measurement Performance Criteria	Worksheets #12, #24, and #28 and DoD QSM, version 5.1
Percent of Data Packages to be Validated	100% for PFOS and PFOA
Percent of Raw Data Reviewed	None
Percent of Results to be Recalculated	None
Validation Procedure	The Leidos Project Chemist will validate analytical data packages using Leidos procedure ESE Data Management-05[a]. These packages are generated by a subcontracted commercial laboratory. Leidos will evaluate the laboratory performance using objective criteria taken from the requirements of the project UFP-QAPP; the DoD QSM, version 5.1; and EPA functional guidelines. This process is done independently from the end data users that prepare the SI Reports. The findings of this evaluation are summarized in the DQA. All data validation and DQA documentation will receive a technical review by the project QA Officer

[a] Initial and continuing calibration verification and validation will be limited to 10% of the PFOS and PFOA calibration results, as specified in the *Air National Guard Environmental Restoration Program Investigation Guidance* (ANG 2009). All other verification and validation will require 100% review of other QA/QC data as they apply to PFOS and PFOA.

Note: Non-compliant data will be qualified as follows:

U = The analyte was analyzed for, but was not detected above, the reported sample quantitation limit. These results are qualitatively acceptable.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. These results are qualitatively acceptable but estimates.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is an estimate.

R = The analyte was rejected due to QC parameters that far exceed QC requirements, as described in Leidos SOP ESE Data Management-05.

DL = Detection limit.
DoD = U.S. Department of Defense.
DQA = Data quality assessment.
EDD = Electronic data deliverable.
EPA = U.S. Environmental Protection Agency.
ERPIMS = Environmental Resources Program Information Management System.
ESE = Environmental Science and Engineering.
LOD = Limit of detection.
LOQ = Limit of quantitation.
QA = Quality assurance.
QC = Quality control.
QSM = Quality Systems Manual.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.
SI = Site inspection.
SOP = Standard Operating Procedure.
UFP-QAPP = Uniform Federal Policy Quality Assurance Project Plan.

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QAPP Worksheet #37 – Data Usability Assessment

Review the Project Objectives and Sampling Design: The data usability assessment will be performed by a team of Leidos personnel. The Leidos Project Chemist and Project QA Officer will be responsible for information in the data usability assessment. Note that the data usability assessment will be conducted on verified/validated PFOS/PFOA data. After the data usability assessment has been performed, data deemed appropriate for use then will be used to support further recommendations. The results of the data usability assessment will be presented in the final DQA
Data Verification/Validation Outputs: Precision—Results of all laboratory duplicates, MS/MSD pairs, LCS/LCSD pairs, and field duplicates will be assessed against measurement performance criteria provided on Worksheet #12. The RPDs exceeding criteria will be identified in the DQA. A discussion will follow summarizing the results of the laboratory precision. Any conclusions about the precision of the analyses will be drawn, and any limitations on the use of the data will be described. Accuracy/Bias Contamination—Results for all laboratory method blanks and field QC blanks will be assessed against measurement performance criteria provided on Worksheet #12. Results for analytes that exceed criteria will be identified in the DQA. Any conclusions about the accuracy/bias of the analyses based on contamination will be drawn, and any limitations on the use of the data will be described in the DQA. Overall Accuracy/Bias—The results for the LCS/LCSDs, MS/MSDs, internal standards, and surrogates (if required) will be assessed against measurement performance criteria provided on Worksheet #12. In addition, initial and continuing calibration data will be compared to the requirements provided on Worksheet #24. A discussion will follow summarizing overall accuracy/bias. Any conclusions about the overall accuracy/bias of the analyses will be drawn, and any limitations on the use of the data will be described in the DQA. Sensitivity—Results for all samples will be presented separately in tabular format for each analysis. The results for each analyte will be checked against the laboratory DLs, LODs, LOQs, and project action levels. A discussion will follow summarizing the results of the laboratory sensitivity. Any conclusions about the sensitivity of the analyses will be drawn, and any limitations on the use of the data will be described in the DQA. Representativeness—Representativeness will be achieved by using standard sampling and analytical methodologies governing sample collection methods, sample size, preservation and handling, and methodology. Representativeness will be assessed qualitatively by ensuring that sample collection, handling, and analysis methodologies were followed. A discussion will follow summarizing the results of the representativeness of the results. Any conclusions about the representativeness of the analyses will be drawn, and any limitations on the use of the data will be discussed in the DQA. Comparability—Comparability will be achieved by using standard sampling and analysis procedures that can be reproduced in future sampling events. Analytical results also will be compared semi-qualitatively to historical data available for the site and field observations. A discussion will follow summarizing the results of the comparability of the results. Any conclusions about the comparability of the analyses will be drawn, and any limitations on the use of the data will be described in the DQA. Completeness—A completeness check will be done on all of the data generated by the laboratory. Completeness criteria are presented in Worksheet #12. Completeness will be calculated as the number of data points that are not rejected in the data verification and validation process divided by the total number of data points planned. Any conclusions about the completeness of the data for each analyte will be drawn, and any limitations on the use of the data will be described in the DQA. Reconciliation—Each of the project quality objectives presented on Worksheet #11 will be examined to determine if the objective was met. This examination will include a combined overall assessment of the results of each analysis pertinent to an objective. Each analysis will first be evaluated separately in terms of the major impacts observed from the data validation, data quality indicators, and measurement performance criteria assessments. Based on the results of these assessments, the quality of the data will be determined. Based on the quality determined, the usability of the data for each analysis will be determined. Based on the combined usability of the data from all analyses for an objective, it will be determined if the project quality objective was met and whether project action limits were exceeded. The final report will include a summary of all the points that went into the reconciliation of each objective. As part of the reconciliation of each objective, conclusions will be drawn, and any limitations on the usability of any of the data will be described.

QAPP Worksheet #37 – Data Usability Assessment (continued)

Identify the personnel responsible for performing the usability assessment: Brooke Francis or Joe Peters, Project Chemist, Leidos
Describe how the usability assessment will be documented: An analytical DQA report will be generated and will discuss limitations of data usability

Note: Data usability assessment inputs and outputs and data usability discussions will be limited to PFOS and PFOA.
DL = Detection limit.
DQA = Data quality assessment.
LCS = Laboratory control sample.
LCSD = Laboratory control sample duplicate.
LOD = Limit of detection.
LOQ = Limit of quantitation.
MS = Matrix spike.
MSD = Matrix spike duplicate.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.
QA = Quality assurance.
QC = Quality control.
RPD = Relative percent difference.

Three distinct evaluative steps will be used to ensure project data quality needs are met: verification, validation, and usability assessment. These steps apply to all aspects of field sampling and analytical activities as they apply to perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).

A. Laboratory Data Verification

The laboratory will perform in-house analytical data reduction under the direction of the Laboratory Quality Assurance (QA) Manager. The Laboratory QA Manager or designee is responsible for assessing data quality and informing Leidos and the Air National Guard of any data that are considered unacceptable or require caution on the part of the data user in terms of their reliability. Data will be reduced, evaluated, and reported as described in the laboratory QA plan. Data reduction, review, and reporting by the laboratory will be conducted as follows:

- Raw data are produced by the analyst who has primary responsibility for the correctness and completeness of the data. All data will be generated and reduced following the Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP)-defined methods and implementing laboratory Standard Operating Procedure.

- Level 1 technical data review is completed relative to an established set of guidelines by a peer analyst. The review will ensure the completeness and correctness of the data while ensuring all method quality control (QC) measures have been implemented and were within appropriate criteria.

- Level 2 technical review is completed by the area supervisor or data review specialist. This specialist reviews the data for attainment of QC criteria, as outlined in the established methods, and for overall reasonableness. The review will ensure that all calibration and QC data are in compliance. The review will document that the data package is complete and ready for reporting and archiving.

- Upon acceptance of the raw data by the area supervisor, the report is generated and sent to the Laboratory Project Manager (PM) or designee for Level 3 administrative data review. The review will ensure consistency and compliance with all laboratory instructions, the laboratory QA plan, the project laboratory statement of work, and the UFP-QAPP.

- The Laboratory PM will complete a thorough review of all reports.

- Final reports will be generated and signed by the Laboratory PM or designee.

- Data then will be delivered to the Leidos Project Chemist via the Leidos Data Manager for data verification and validation.

The data review process will include identification of any out-of-control data points and data omissions, as well as interactions with the laboratory to correct data deficiencies. Decisions to repeat sample collection and analyses may be made by the Leidos PM based on the extent of the deficiencies and their importance in the overall context of the project. The laboratory will provide flagged data to include such items as: (1) concentration below the required detection limit, (2) estimated concentration due to poor spike recovery, and (3) concentration of chemical also found in the laboratory blank.

The laboratory will prepare and retain full analytical and QC documentation for the project for a minimum of 7 years. Such retained documentation may be hard (paper) copy and/or electronic storage media (e.g., compact disc or digital versatile disc) as dictated by the analytical methodologies employed. As needed, the laboratory will supply hard copies of the retained information.

B. Leidos Data Verification and Validation

The Leidos Project QA Officer or designee will initiate a verification of the analytical data packages, as described below. One hundred percent of the data (environmental media, field QC blanks, and associated laboratory QC analyzed for target PFOS and PFOA) will be verified using acceptance criteria provided on Worksheet #12 and in accordance with Environmental Science and Engineering (ESE) Procedure Data Management-05.

An independent review of the data set will be performed by the Leidos Data Validator and/or QA Specialist. In addition, the PM will conduct an evaluation during preparation of reports to ensure that the precision and accuracy of the analytical data are adequate for their intended use. The greatest uncertainty in a measurement is often a result of the sampling process and inherent variability in the environmental media rather than the analytical measurement. Therefore, analytical data evaluation will be performed to the level necessary to ascertain data usability (e.g., identifying estimated or rejected data) and to minimize the potential of using false-positive or false-negative results in the decision-making process (i.e., to ensure accurate identification of detected versus non-detected compounds). This approach is consistent with the data quality objectives (DQOs) for the project, with the analytical methods, and for evaluation of potential remedial designs and contaminant degradation.

Data evaluation will be accomplished by comparing the contents of the data packages and QA/QC results to requirements contained in the requested analytical methods. Leidos will evaluate QC data reported by the laboratory against required precision and accuracy limits established in the U.S. Department of Defense Quality Systems Manual, version 5.1 (DoD 2017) and other QC criteria presented in this UFP-QAPP. All QA/QC parameters summarized in each sample delivery group (SDG) will be evaluated against criteria presented in Worksheet #12 by data verification and validation personnel. This review process will not include calculations from the analytical raw data, unless trends in extreme outliers that result in data rejection are noted. If it is deemed that calculations from the raw data are needed, calculations will only be performed to the level necessary to ascertain that the laboratory is accurately reporting results related to the outliers that result in rejection. If it is found that the laboratory is not accurately reporting results related to the issue that initiated calculations from the raw data, a Nonconformance Report or Corrective Action Report will be initiated as necessary to ensure that project DQOs are not compromised.

Leidos data verification and validation support staff will conduct a systematic review of the chemical of concern data set for compliance with the established QC criteria based on the following categories:

- Sample condition upon receipt,
- Holding times,
- Blanks,
- Matrix spike/matrix spike duplicates,
- Laboratory control samples,
- Surrogate recovery (organic methods),
- Internal standards,
- Calibration (10% of calibration information will be verified/validated),

- Sample reanalysis,
- Secondary dilutions, and
- Laboratory case narrative.

Data qualifications will be applied based on deviations from the measurement performance criteria identified on Worksheet #12. Information gathered during this verification process will be consistent with the information demonstrated by Leidos verification/validation checklists.

A data validation checklist will be prepared for each analytical SDG received from the laboratory. This data validation checklist includes the sample Form 1s for the SDG evaluated, and resulting data validation qualifiers and reason codes associated with the data validation qualifier are annotated on the Form I. Each validation checklist includes a section for each QA/QC procedure required for each analytical method, and any QA/QC outliers and the impact of the outlier on data quality are noted in these sections. Each data validation checklist will be archived and used to determine overall data usability at the end of each phase of the project. These checklists will be included in the final report as an appendix.

C. Usability Assessment

The usability assessment considers whether the collected data meet the project DQOs. The usability assessment is the final step of data review and will be performed only on verified and validated data. The DQO process for this project is presented throughout this document, but principally on Worksheets #10, #11, and #12. The usability assessment process is provided in this worksheet.

Verifying the attainment of the DQO statements should be conducted as follows:

- Verification should generally be done by the data user perspective(s) that will be using the data.
- Verification of DQO attainment must be completed before the data are used by the data users.
- All data quality requirements of a DQO statement should be verified.
- Verification of DQO attainment typically is required to ensure contract compliance.

Appropriate corrective actions should be taken whenever data obtained are inadequate for the intended use(s). After completing an assessment of the effects of a missed DQO, the source or cause for missing the DQO should be investigated and understood by the team. When necessary, and if possible, resampling and/or reanalysis then should be performed at the expense of the responsible party (e.g., government, contractor, or laboratory).

D. Data Quality Assessment

As part of the SI Report, Leidos will submit a data quality assessment (DQA) summary. The DQA summary will reference the SI Report appendix where the analytical data packages and data validation checklists can be found and will summarize the samples collected and the analytical parameters associated with each sample. An explanation of how the data are reported as they relate to the laboratory detection limit, limit of detection, and limit of quantitation will be provided, followed by a discussion of factors that affect data usability for PFOS and PFOA. Any rejected data and the reasons for rejection will be described. Details regarding non-rejected qualified data will be included in the referenced appendix, which contains the data validation checklists. The DQA also will include a brief discussion of precision, accuracy, representativeness, completeness, comparability, and sensitivity.

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REFERENCES

ANG (Air National Guard) 2009. *Air National Guard Environmental Restoration Program Investigation Guidance*, Air National Guard Readiness Center, Andrews Air Force Base, Maryland, Final, September.

ANG 2010. *Environmental Resources Program Information Management System (ERPIMS)*, Policy A7O 10-01, September.

ANG 2011. *Collection of Digital Spatial Data for Monitoring Wells During Environmental Investigation at Air National Guard Sites*, Policy A7O 11-01.

ANG 2014. *Requirements for Geospatial Data Deliverables*, Policy A7O 14-01, March.

ANG 2015. *Policy for Delivery of Final Electronic Documents*, Policy A7O 15-01, February.

DoD (U.S. Department of Defense) 2017. *U.S. Department of Defense Quality Systems Manual for Environmental Laboratories*, Version 5.1.

EPA (U.S. Environmental Protection Agency) 2009. *Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)*,Version 1.1, September.

EPA 2012. Third Unregulated Contaminant Monitoring Rule (UCMR 3), May.

IDQTF (Intergovernmental Data Quality Task Force) 2005a. *Uniform Federal Policy for Quality Assurance Project Plans: Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs – Part 1: UFP-QAPP Manual*, EPA Publication Number EPA-505-B-04-900A, DoD Publication Number DTIC ADA 427785, Final, Version 1, March.

IDQTF 2005b. *Workbook for Uniform Federal Policy for Quality Assurance Project Plans: Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs – Part 2A: UFP-QAPP Workbook*, EPA Publication Number EPA-505-B-04-900C, DoD Publication Number DTIC ADA 427786, Final, Version 1, March.

IDQTF 2005c. *Uniform Federal Policy for Quality Assurance Project Plans – Part 2B, Quality Assurance/Quality Control Compendium: Minimum QA/QC Activities,* EPA Publication Number EPA-505-B-04-900B, DoD Publication Number DTIC ADA 427787, Final, Version 1, March.

IDQTF 2012. *Uniform Federal Policy for Quality Assurance Project Plans – Part 2A (Revised): Optimized UFP-QAPP Worksheets*, March.

Leidos 2017. *Quality Control Plan for Fiscal Year 2017 Phase III Regional Site Inspections for Perfluorinated Compounds at Multiple Air National Guard Installations,* Final, August.

NGB (National Guard Bureau) 2017. *Statement of Objectives for FY17 Phase III Regional Site Inspections for Perfluorinated Compounds at Multiple Air National Guard Installations*, Project Number ANGH20177151, January 2017; Revised February.

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APPENDIX B

SITE SAFETY AND HEALTH PLAN

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FINAL

SITE SAFETY AND HEALTH PLAN
FOR
FISCAL YEAR 2017 PHASE III
PERFLUOROOCTANE SULFONATE/
PERFLUOROOCTANOIC ACID AT
MULTIPLE AIR NATIONAL GUARD INSTALLATIONS

National Guard Bureau
Environmental Restoration Program
Joint Base Andrews, Maryland

October 2017

17-048(E)/101217

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FINAL

SITE SAFETY AND HEALTH PLAN
FOR
FISCAL YEAR 2017 PHASE III
REGIONAL SITE INSPECTIONS FOR
PERFLUOROOCTANE SULFONATE/
PERFLUOROOCTANOIC ACID AT
MULTIPLE AIR NATIONAL GUARD INSTALLATIONS

October 2017

Contract Number W9133L-14-D-0007
Task Order Number 0011

Prepared for
Air National Guard
Restoration Branch
NGB/A4OR
3501 Fetchet Avenue
Joint Base Andrews, Maryland 20762

Prepared by
11951 Freedom Drive
Reston, Virginia 20190

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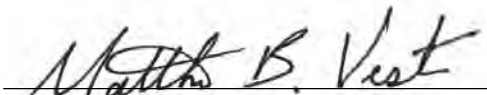
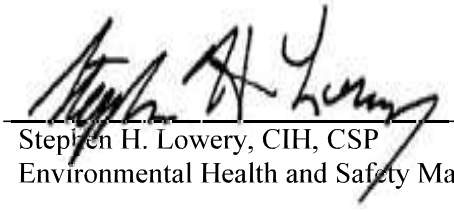
APPROVAL SIGNATURES



Matthew B. Vest, P.G., PMP
Leidos Project Manager

October 11, 2017
Date



Stephen H. Lowery, CIH, CSP
Environmental Health and Safety Manager

October 11, 2017
Date

To Be Determined, FM/SHSO[1] for Site Inspections

October 11, 2017
Date

Phone

[1]Multiple Field Managers (FMs)/Site Health and Safety Officers (SHSOs) will be required for project execution. Concurrence with this Site Safety and Health Plan (SSHP) by each identified FM/SHSO is required prior to the start of relevant field activities. A Field Change Notice will be issued and approved prior to fieldwork execution indicating the FM/SHSO has read the Site Inspection Work Plan and SSHP.

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ACRONYMS

AFFF	aqueous film-forming foam
AHA	activity hazard analysis
ANG	Air National Guard
BGS	below ground surface
DOT	U.S. Department of Transportation
DPT	direct-push technology
EESE	Energy, Environmental Science and Engineering
EH&S	environmental health and safety
FM	Field Manager
FTA	fire training area
GPS	global positioning system
HDPE	high-density polyethylene
HSA	hollow-stem auger
IATA	International Air Transport Association
IDW	investigation-derived waste
LDPE	low-density polyethylene
OJT	on-the-job training
PFC	perfluorinated compound
PFD	personal floatation device
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PPE	personal protective equipment
PRL	potential release location
PVC	polyvinyl chloride
SDS	Safety Data Sheet
SHSO	Site Health and Safety Officer
SI	site inspection
TBD	to be determined
VOC	volatile organic compound

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INTRODUCTION

This site-specific Site Safety and Health Plan has been developed for work to be conducted by Leidos on behalf of the Air National Guard (ANG) at 15 ANG Installations. Work is being conducted under National Guard Bureau Contract Number DW9133L-14-D-0007, Task Order 0011. This plan complies with all applicable requirements of Section 1.4.1 and Appendix A of the *Air National Guard Environmental Restoration Program Investigation Guidance* (ANG 2009).

LOCATION(S): MULTIPLE AIR NATIONAL GUARD INSTALLATIONS

SITE DESCRIPTION

Preliminary Assessment Reports prepared for 15 Installations in 11 states identified a total of 136 areas of concern (herein referred to as potential release locations [PRLs]) for site inspection (SI) activities. The locations at all Installations used or stored aqueous film-forming foam (AFFF) and are similar across all Installations. PRLs at the Installations consist of the following:

- Fire training areas (FTAs),
- Fire stations,
- Fire truck equipment testing and maintenance areas,
- Locations where aircraft fuel emergency response activities were conducted,
- Hangers and buildings where testing or emergency activation of AFFF fire suppression systems have occurred,
- Hangers or buildings with fire suppression system releases due to malfunctions,
- Stormwater and/or surface water locations (drainage canals, outfalls, wastewater treatment plants, or AFFF ponds), and
- Other spills and releases.

The sites are located on active military Installations in relatively flat, open grassy areas and/or concrete surfaces in the former FTAs, fire stations, hangers, or buildings. Hearing protection in the vicinity of the aircraft maintenance areas and flight line will be required as a result of aircraft noise.

The SIs will be conducted at the Installations listed in Table 1.

Table 1. Installations, Locations, and Total PRLs

Number	Installation	State	PRLs
1	Rosecrans Memorial Airport	Missouri	8
2	Lambert St. Louis International Airport	Missouri	5
3	Great Falls International Airport	Montana	8
4	Des Moines International Airport	Iowa	14
5	Sioux Gateway Municipal Airport	Iowa	9
6	Hector Field International Airport	North Dakota	10
7	Lincoln Municipal Airport	Nebraska	13
8	Reno Tahoe International Airport	Nevada	11
9	Boise International Airport	Idaho	8
10	Tulsa International Airport	Oklahoma	7
11	Will Rogers International Airport	Oklahoma	9
12	Ellington Field (Houston)	Texas	9
13	Klamath Falls International Airport (Kingsley Field)	Oregon	7
14	Portland International Airport	Oregon	9
15	Cheyenne Municipal Airport	Wyoming	9

PRL = Potential release location.

SCOPE OF WORK TO BE PERFORMED BY LEIDOS AND SUBCONTRACTORS

Leidos has been tasked by ANG to conduct SIs for perfluorinated compounds (PFCs), more specifically per- and polyfluoroalkyl substances, including perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), at 15 ANG Installations. The project scope was outlined in the *Statement of Objectives for FY17 Phase III Regional Site Inspections for Perfluorinated Compounds at Multiple Air National Guard Installations* (NGB 2017).

The scope of the SI field activities includes soil sampling via hand augers, direct-push technology (DPT), and potentially using hollow-stem augers (HSAs); installation of temporary piezometers and permanent monitoring wells using DPT and HSA methods; well development; groundwater sampling of temporary piezometers (water level measurements only) and permanent monitoring wells; abandonment of soil borings; surface water and sediment sampling; and management of investigation-derived waste (IDW). Soil borings will typically be advanced to the water table, bedrock interface, or to a maximum depth of 25 ft below ground surface (BGS), whichever occurs first.

Leidos will conduct all well development activities; hand augering for soil sample collection; and soil, sediment, surface water, and groundwater sampling. Leidos will provide oversight of drilling/DPT activities, well installation, abandonment of soil borings, and waste management activities. Drilling activities will be performed by an approved subcontractor.

UNDERGROUND UTILITY CLEARANCE

Prior to conducting any field activities, the sample locations will be staked within the investigation area. Leidos will ensure the approved subcontractor contacts the state's One-Call System to locate and mark utilities in the investigation area. In addition, utility clearance requests will be submitted to Base Civil Engineering to locate any utility lines installed by the Base. Hand augering will be conducted to clear the first 5 ft of each borehole to ensure sample locations are free of utilities in accordance with Leidos procedures.

ASPHALT/CONCRETE CUTTING

A coring drill or concrete saw will be used to cut through asphalt and/or concrete as required prior to augering, DPT, and HSA activities. Borings and monitoring wells will be installed in grassy areas adjacent to asphalt/concrete and buildings whenever possible.

SOIL SAMPLING

Soil borings will be advanced using hand augers, DPT, or HSA. Soil samples will be collected from each soil boring. Soil borings will be advanced to the water table, bedrock interface or to a maximum depth of approximately 25 ft BGS, whichever comes first. Approximately two soil samples will be collected per soil boring—one from the surface interval (0 to 2 ft BGS), and one from immediately above the water table or bedrock interface.

TEMPORARY PIEZOMETER INSTALLATION

Temporary piezometers will be installed to investigate the depth to groundwater and to determine groundwater flow direction. Each temporary piezometer will consist of a 1-in.-diameter polyvinyl chloride (PVC) well casing and 10-ft screen set to straddle the water table. The temporary piezometers(s) will be installed using hand augers, DPT, or HSA.

MONITORING WELL INSTALLATION

Permanent monitoring wells will be installed to investigate the groundwater flow direction and to allow for multiple rounds of groundwater sampling, if required. Each monitoring well will consist of a 2-in.-diameter PVC well casing and 10-ft screen set to straddle the water table. The permanent monitoring wells will be installed using DPT or HSA methods. All components of the DPT and HSA must be Teflon®-free.

WELL DEVELOPMENT

Well development of newly installed permanent monitoring wells will be initiated no sooner than 48 hr after placement of annular grout to the ground surface. The monitoring wells installed during this project will be developed using the pump-and-surge method with Teflon®-free submersible pump and tubing. Wells will be developed until water quality parameters (i.e., pH, temperature, conductivity, dissolved oxygen, oxidation-reduction potential, and turbidity) are stable, as defined in the SI Work Plan.

GROUNDWATER SAMPLING OF PIEZOMETERS AND MONITORING WELLS

Groundwater samples will be collected from each newly installed permanent monitoring well and existing wells (where applicable). Samples will be collected using disposable Teflon®-free tubing and a peristaltic pump or a bladder pump.

No groundwater samples will be collected from temporary piezometers. Water level measurements from temporary piezometers will be used to obtain depth to the water table to determine groundwater flow direction in the absence of sufficient permanent monitoring wells.

ABANDONMENT

Temporary piezometers will be abandoned by removing the well casing and tremie grouting or filling with bentonite pellets to the ground surface. If the well casing cannot be removed, the temporary piezometers will be abandoned in place by tremie grouting to the ground surface. Soil borings will be abandoned by tremie grouting or filling with bentonite pellets to the ground.

SURFACE WATER SAMPLING

Surface water samples will be collected from ambient flow prior to sediment sample collection to avoid sediment sampling-induced turbidity. Surface water samples will be collected directly from the selected location by one of the following methods:

- Peristaltic pump with dedicated tubing.
- High-density polyethylene/low-density polyethylene (HDPE/LDPE) dedicated/disposable bailer with HDPE/LDPE check ball (no Teflon®).
- Stainless steel reusable cup/scoop/dipper and decontamination.
- Dedicated HDPE/LDPE container, such as a laboratory bottle without preservative. Submerge the container just below the water surface to fill, and then transfer the collected water to the laboratory bottle with preservative.

All surface water sample locations will be mapped with a handheld digital global positioning system (GPS) device with sub-meter accuracy prior to demobilization. Surface water sampling locations include storm drain outfalls, drainage channels, or from the shore of retention ponds. It is anticipated that all surface water sampling locations will be less than 2 ft deep. If deeper water is encountered, appropriate safety precautions (e.g., flotation devices) will be taken.

SEDIMENT SAMPLING

Sediment samples will be collected directly from the selected location at 0.5 ft BGS using decontaminated stainless steel sampling trowels, hand auger, or a dredge. All sediment sample locations will be mapped with a handheld GPS device with sub-meter accuracy prior to demobilization.

INVESTIGATION-DERIVED WASTE SAMPLING

IDW, including soil, purge water, and decontamination water, will be containerized in drums. Groundwater and soil analytical results will be used for waste characterization of the water and soil.

POTENTIAL HAZARDS AND EMERGENCY INFORMATION

POTENTIAL HAZARDS
Non-project personnel proximity to field activities: passersby in/near work zone.
Traffic accidents associated with travel to and from the site.
Exposure to onsite contaminants: PFOS/PFOA, volatile organic compounds (VOCs) associated with jet fuel.
Exposure to chemicals used onsite: gasoline, isobutylene gas, Liquinox®, and Trizma preservative.
Noise: aircraft testing and flight line, pumps, generators, DPT/drill rigs, and coring drills/concrete saws.
Water hazards (e.g., drowning).
Lifting/moving material/equipment >50 lb weight.
Entanglement due to rotating machinery.
Pressurized air and fluids.
Overhead hazards (e.g., drill rig masts).
Confined spaces (no confined space entry is planned or permitted).
Exposure to temperature or weather extremes (hurricanes).
Sun/ultraviolet exposure.
Pinch/crush.
Slip/trip/fall.

Cut/contusion.
Muscle strain to back/shoulder/arm from augering.
Poisonous plants (poison ivy, oak, and sumac).
Stinging insects and allergic reactions to the venom (e.g., bees and wasps).
Mosquitoes and mosquito-borne illnesses (i.e., West Nile Virus).
Fire ants.
Ticks and tick-borne illnesses (i.e., Rocky Mountain Spotted Fever, turlaremia, Lyme disease, anaplasmosis, babesiosi, rikettsia parkeri ricketsiosis, and ehrlichiosis).
Venomous snakes (e.g., cottonmouths, copperheads, and rattlesnakes).
Fire.
EMERGENCY PHONE NUMBERS
For Medical, Police/Security/Fire: Dial 911
EMERGENCY MEDICAL FACILITY
See Figures 1 through 15 for maps, directions, and phone numbers for emergency rooms located near all sites.

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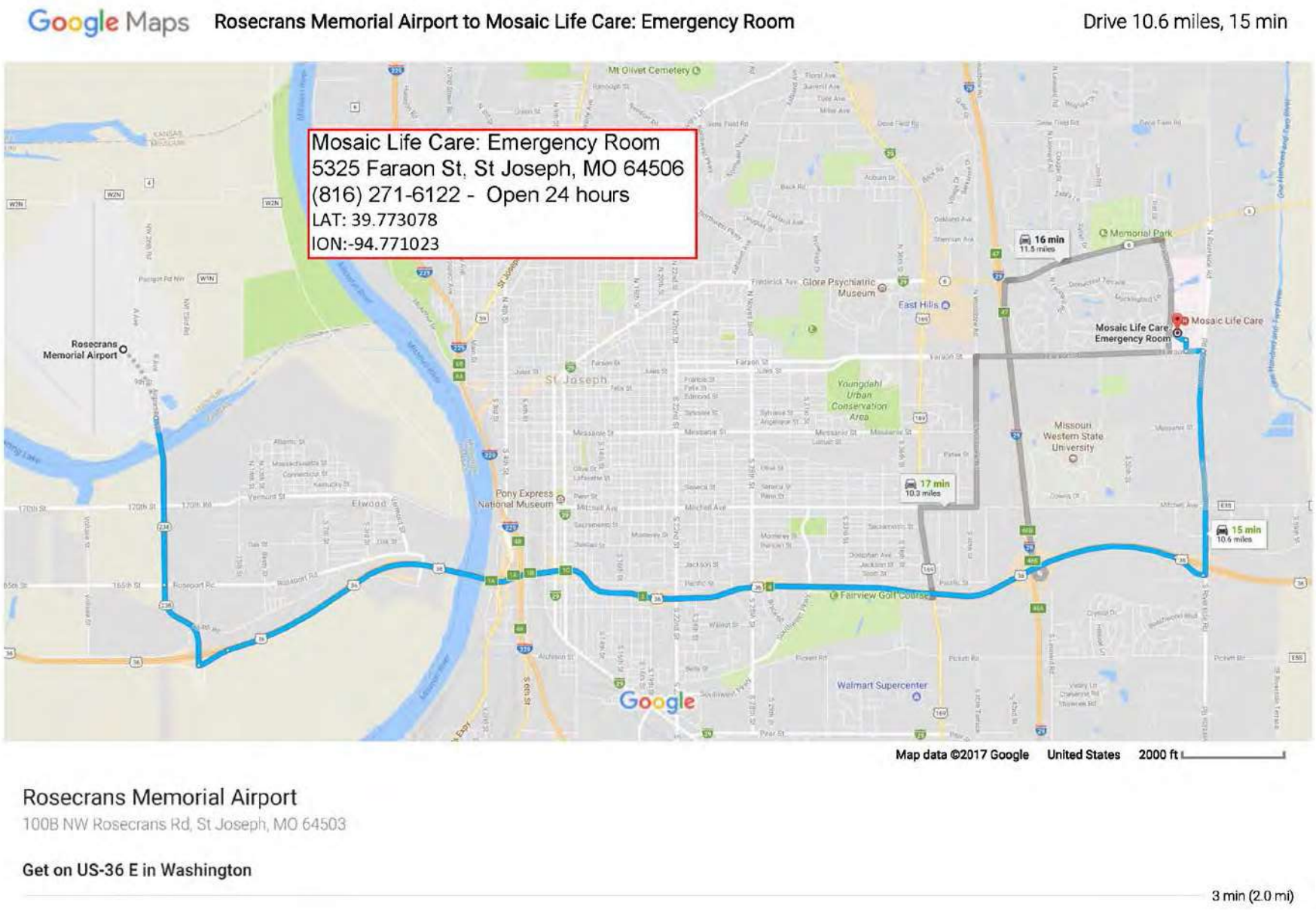


Figure 1. Rosecrans Memorial Airport Emergency Medical Facility Route Map

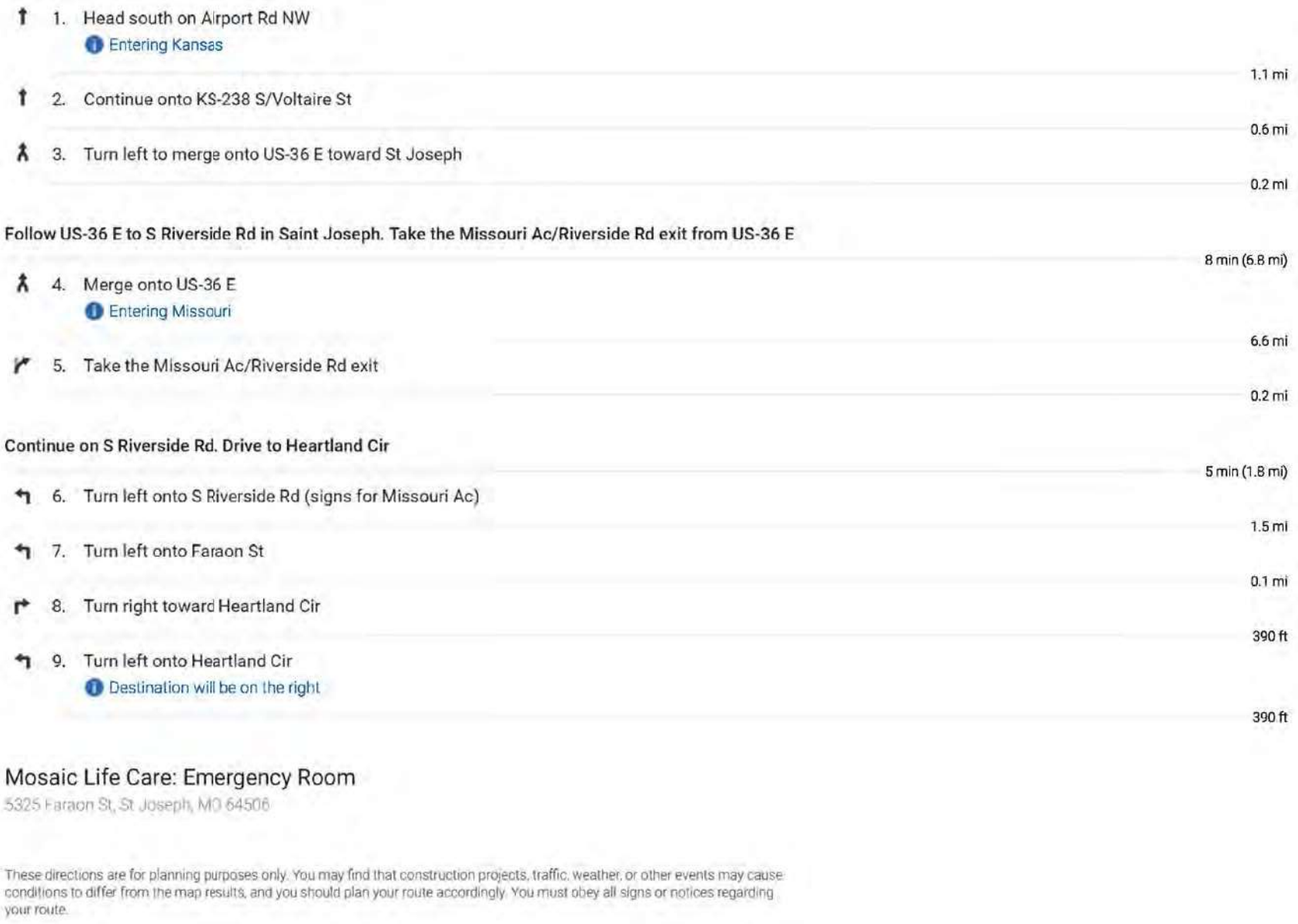


Figure 1. Rosecrans Memorial Airport Emergency Medical Facility Route Map (continued)

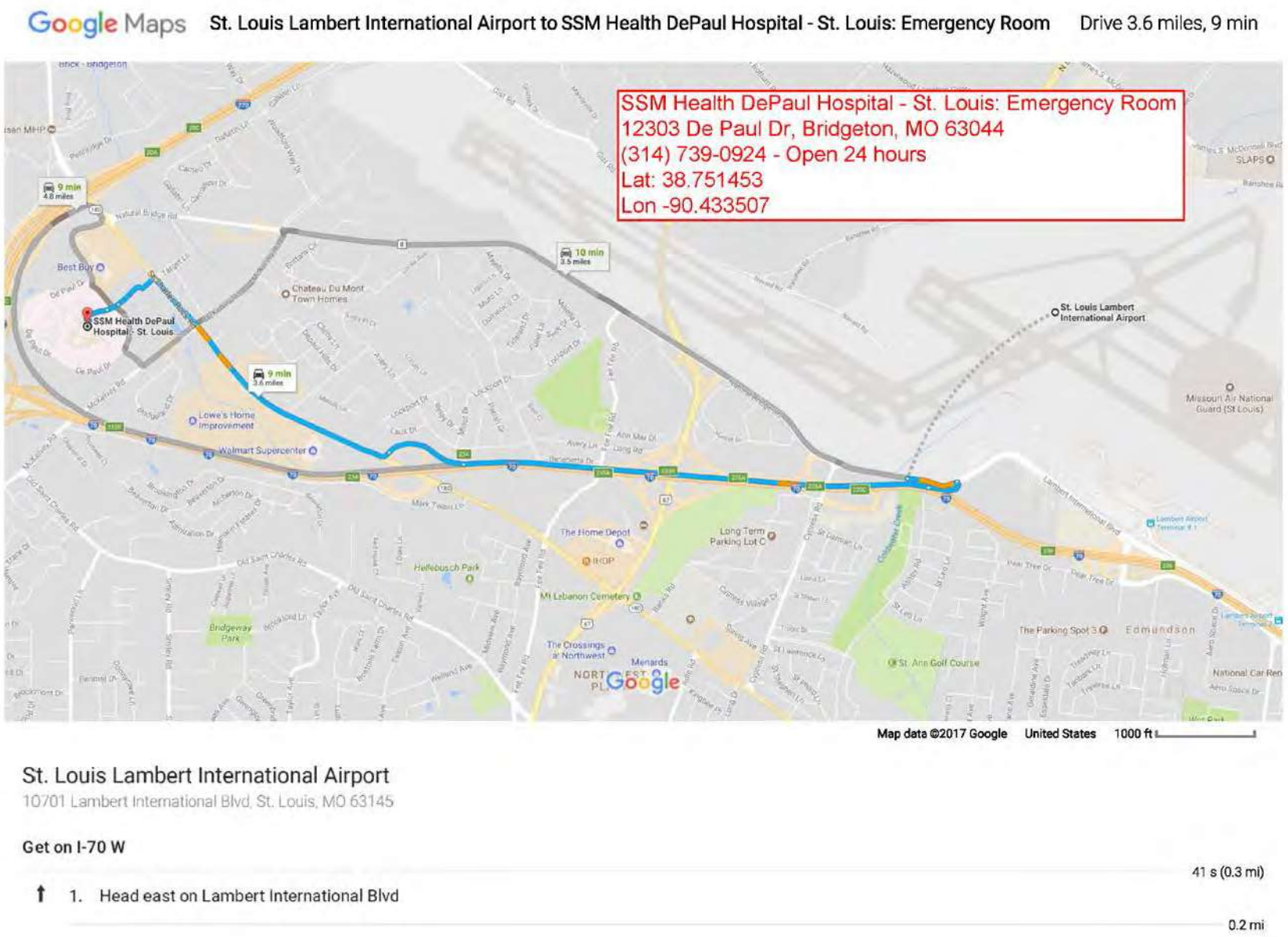


Figure 2. Lambert St. Louis International Airport Emergency Medical Facility Route Map

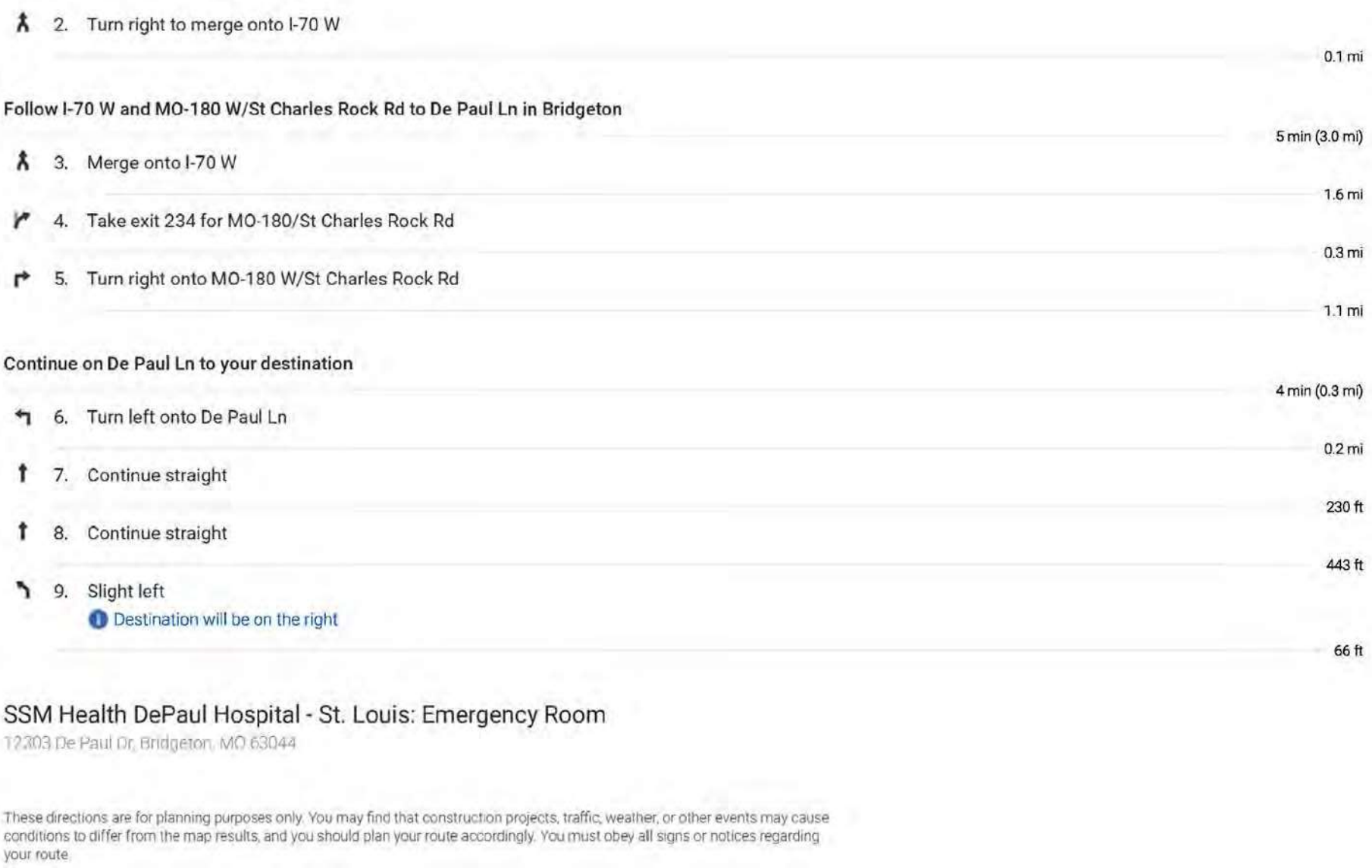


Figure 2. Lambert St. Louis International Airport Emergency Medical Facility Route Map (continued)

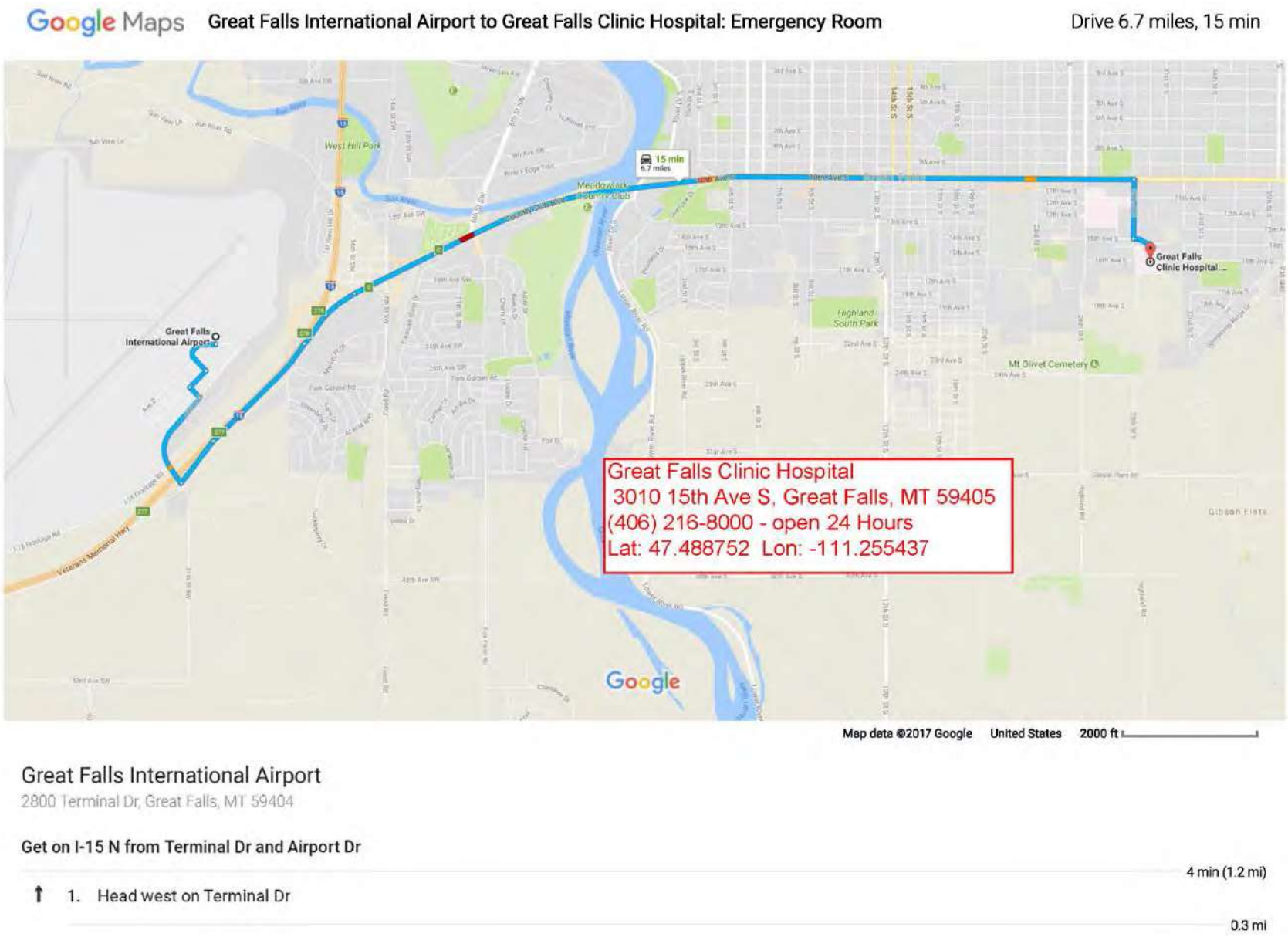


Figure 3. Great Falls International Airport Emergency Medical Facility Route Map

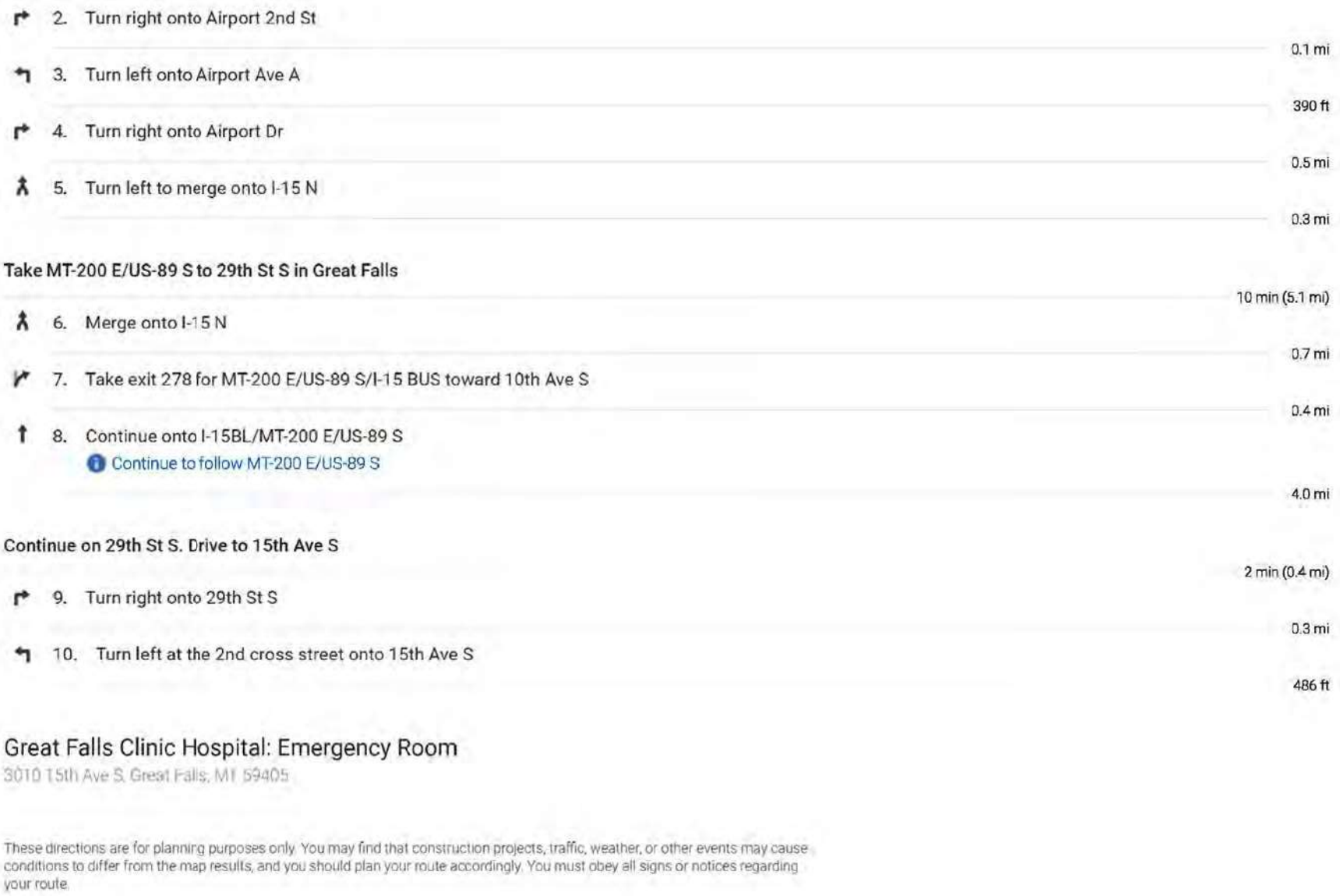
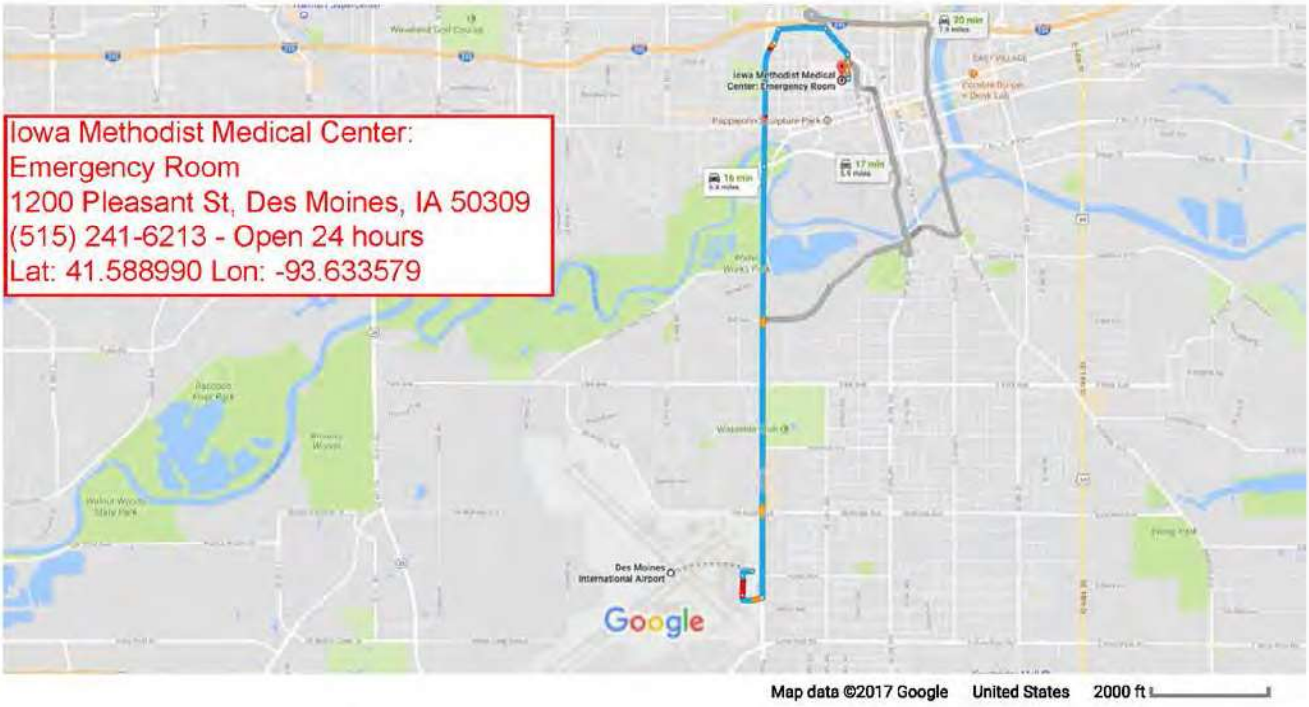


Figure 3. Great Falls International Airport Emergency Medical Facility Route Map (continued)

Google Maps Des Moines International Airport to Iowa Methodist Medical Center: Emergency Room Drive 5.8 miles, 16 min



Des Moines International Airport
5800 Fleur Dr, Des Moines, IA 50321

Take Cowles Dr to Fleur Dr — 3 min (0.5 mi)

1. Head west on Cowles Dr — 0.1 mi
2. Slight left toward Cowles Dr — 0.2 mi
3. Continue straight onto Cowles Dr — 0.2 mi

Continue on Fleur Dr. Drive from Martin Luther King Jr Pkwy to Des Moines — 12 min (5.1 mi)

4. Use the left 2 lanes to turn left onto Fleur Dr — 3.4 mi
5. Continue onto Martin Luther King Jr Pkwy — 1.0 mi
6. Continue onto 19th Pl — 0.1 mi
7. Turn right onto the I-235 E ramp — 0.4 mi
8. Use the right lane to turn right onto Keosauqua Way — 0.3 mi

Figure 4. Des Moines International Airport Emergency Medical Facility Route Map

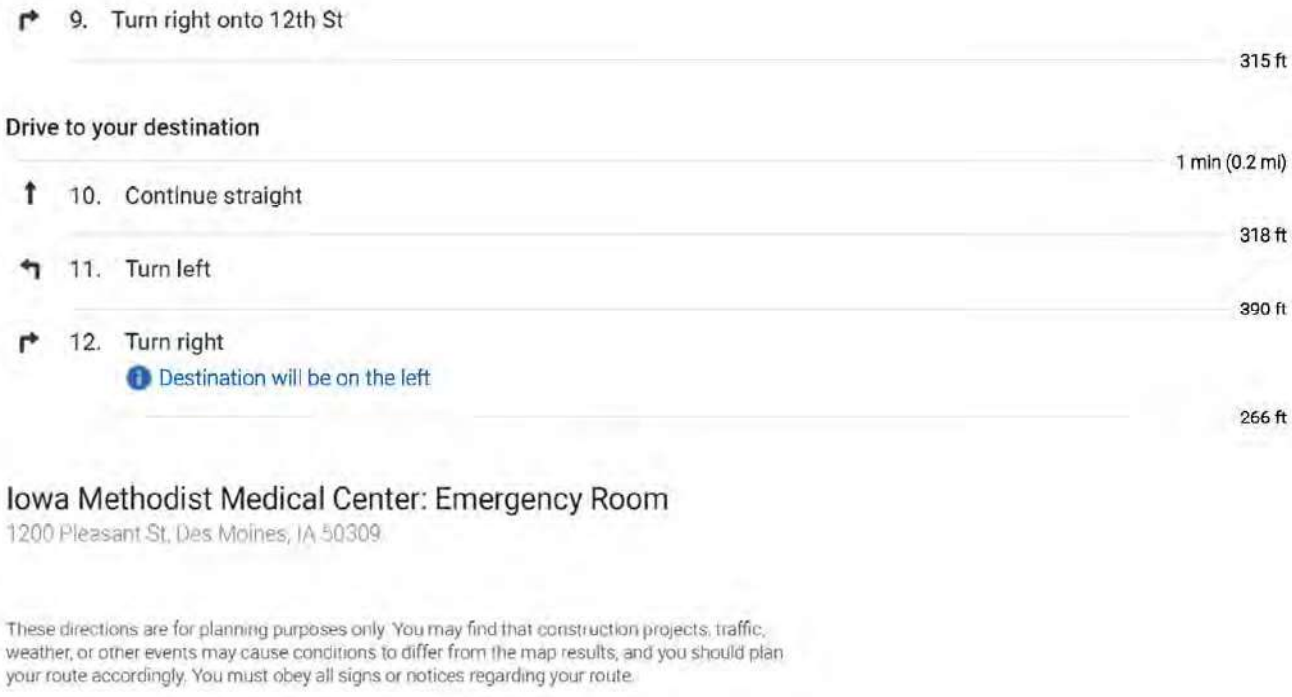


Figure 4. Des Moines International Airport Emergency Medical Facility Route Map (continued)

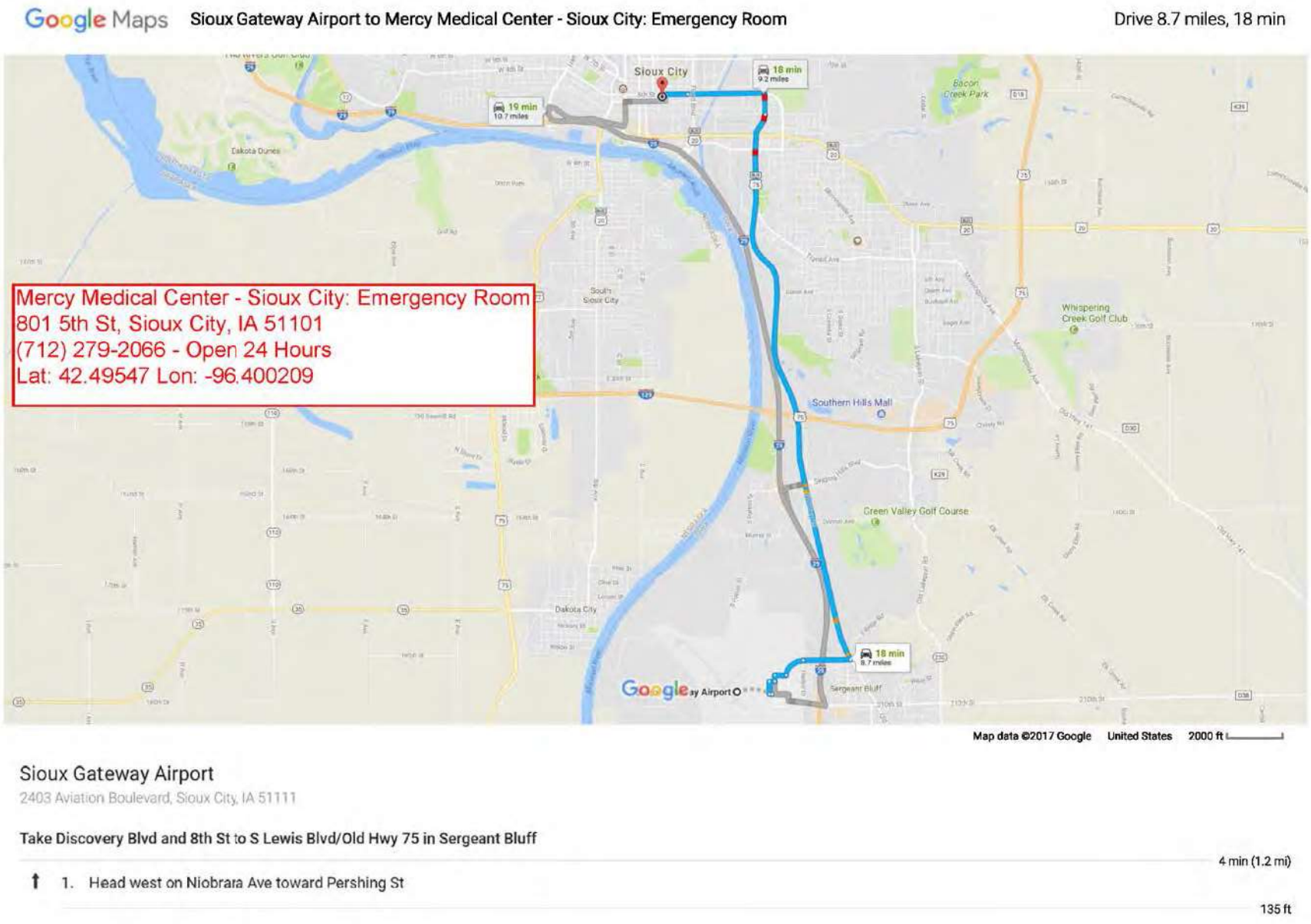


Figure 5. Sioux Gateway Municipal Airport Emergency Medical Facility Route Map

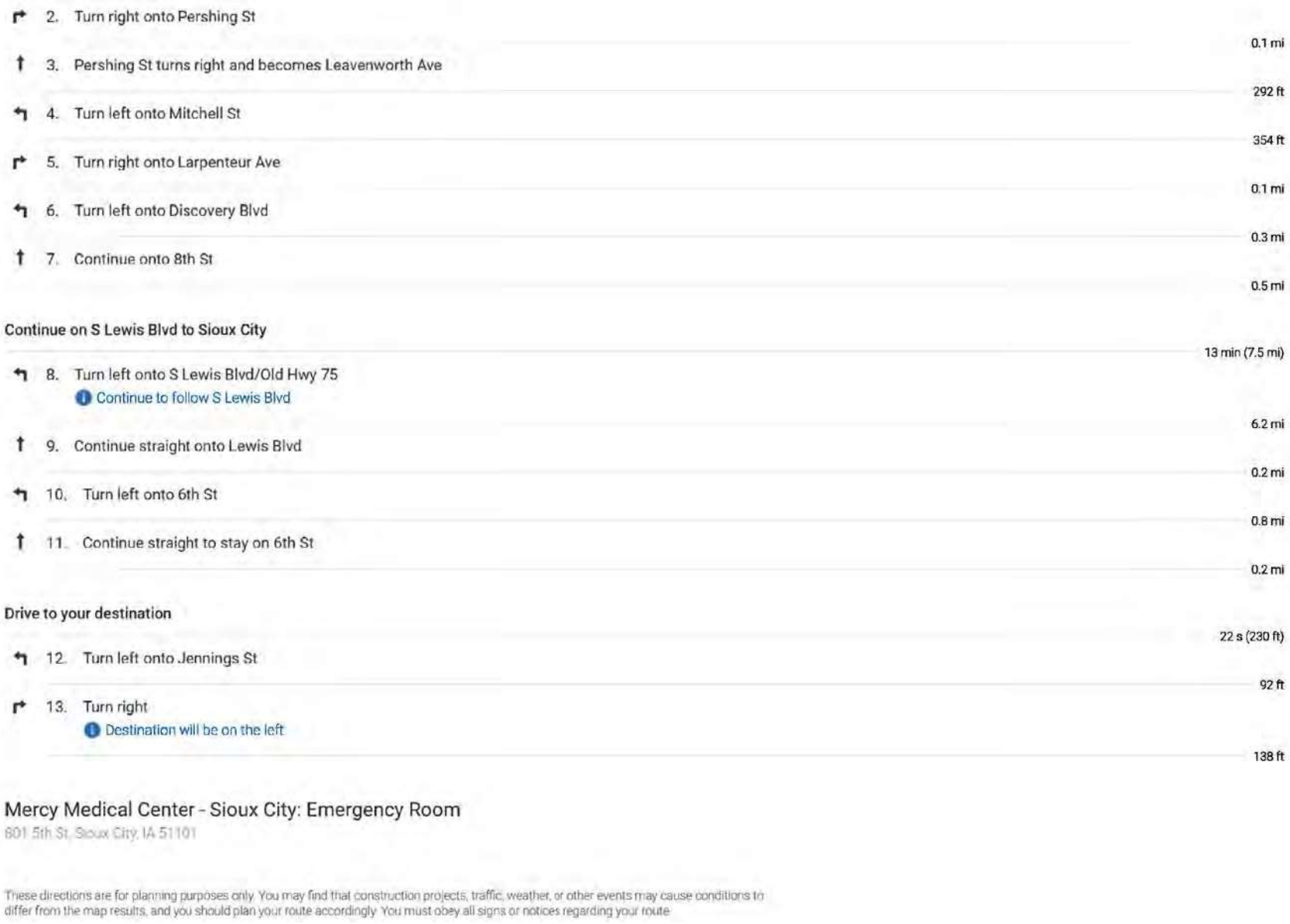


Figure 5. Sioux Gateway Municipal Airport Emergency Medical Facility Route Map (continued)

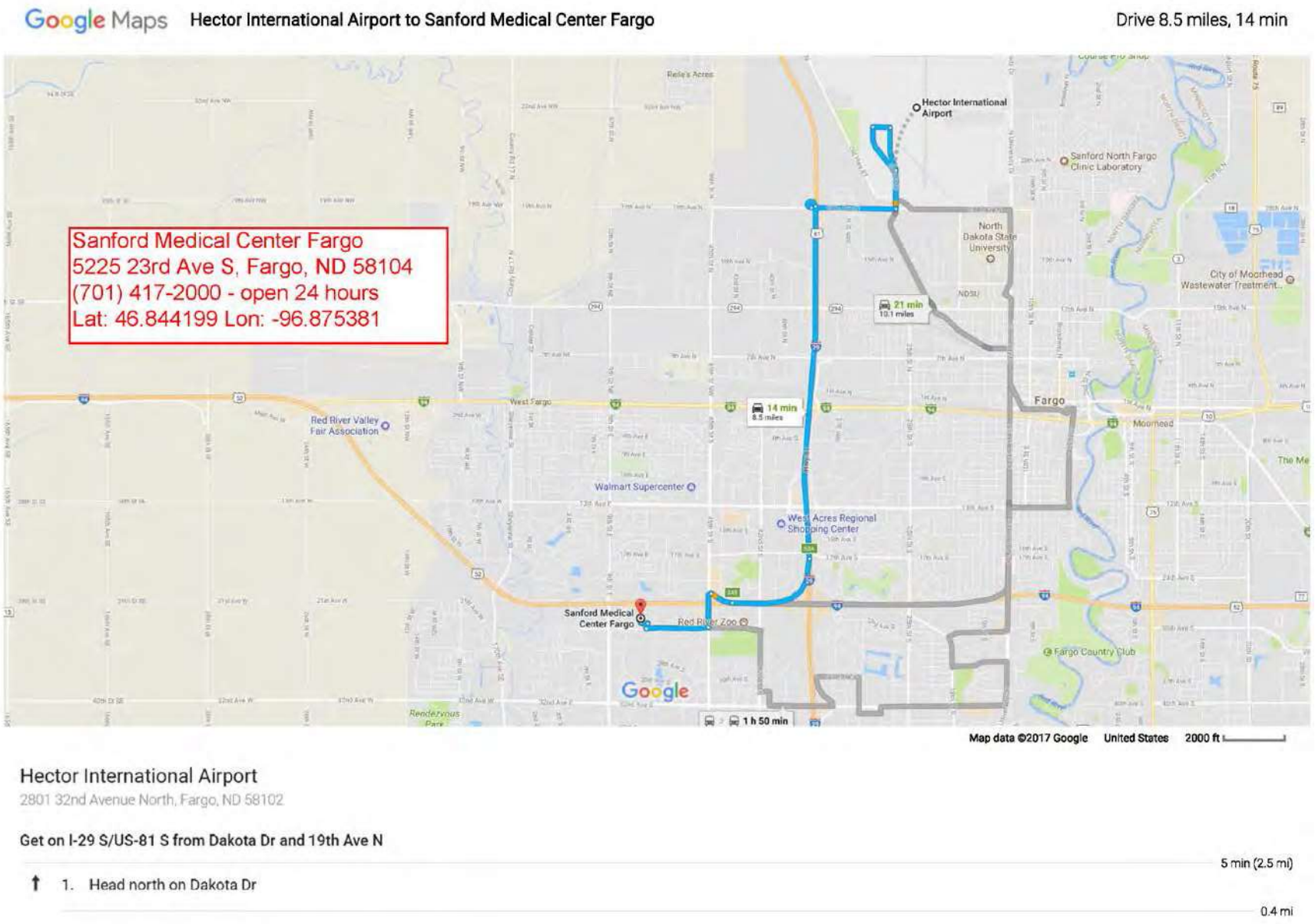


Figure 6. Hector Field International Airport Emergency Medical Facility Route Map

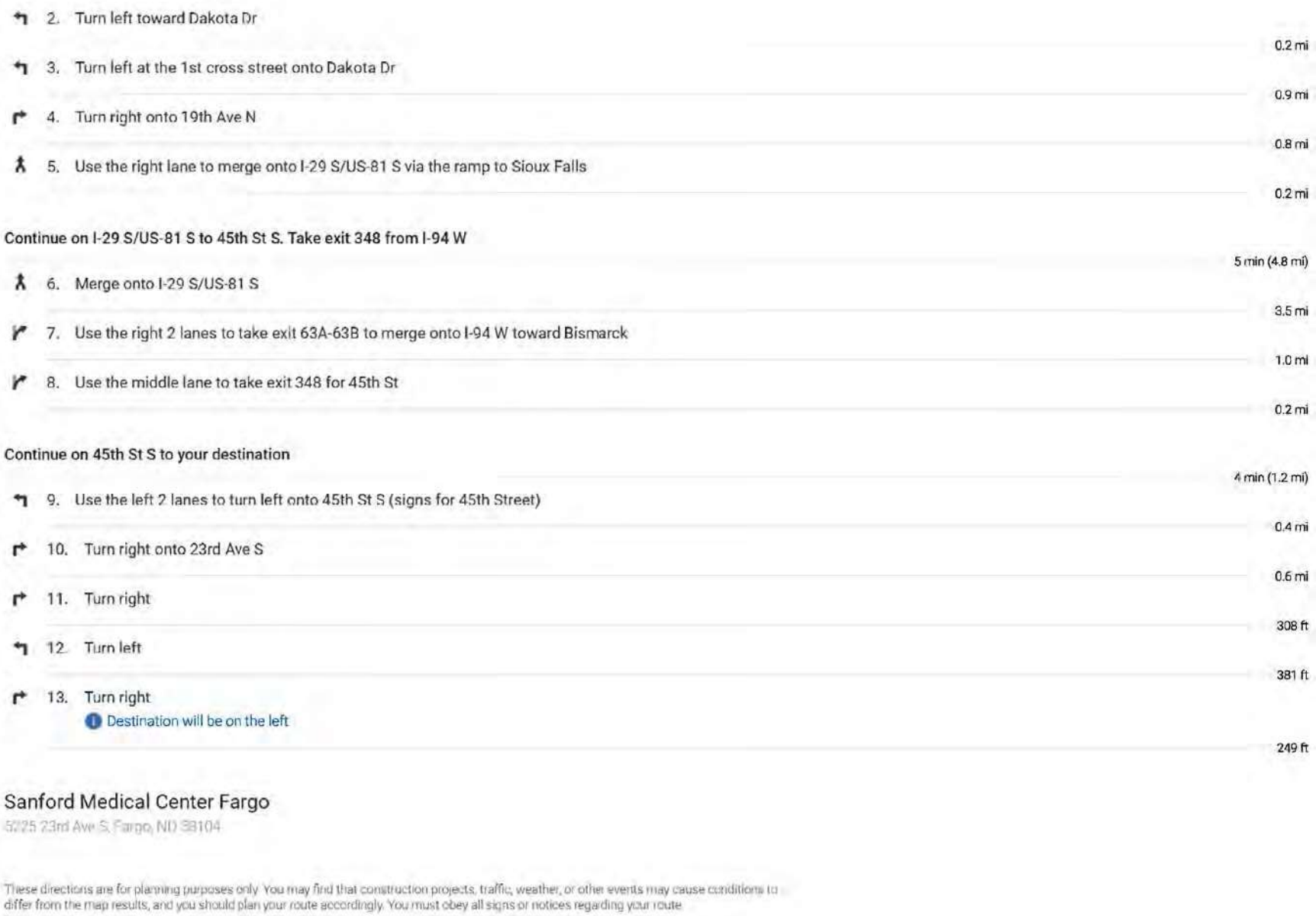


Figure 6. Hector Field International Airport Emergency Medical Facility Route Map (continued)

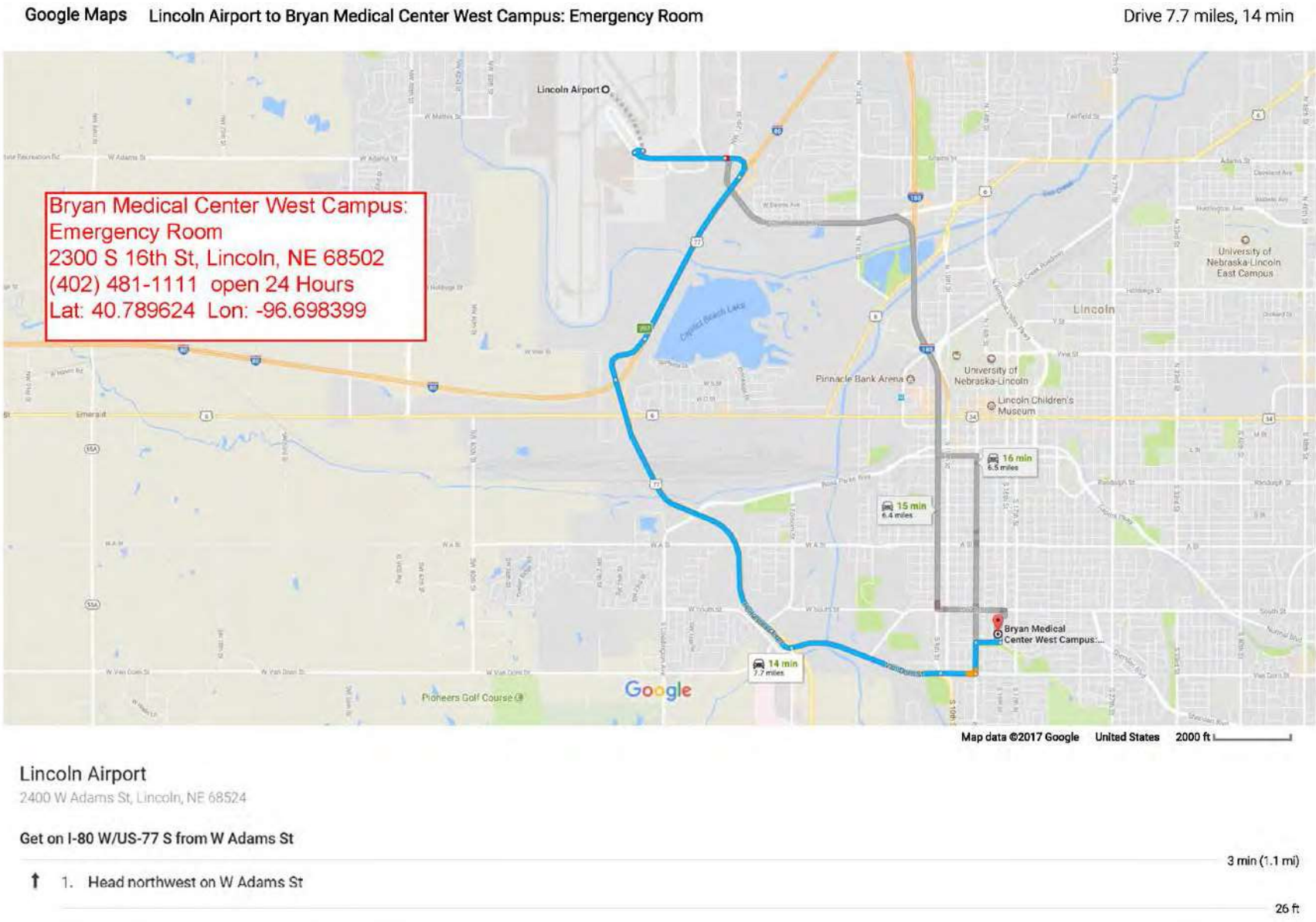


Figure 7. Lincoln Municipal Airport Emergency Medical Facility Route Map

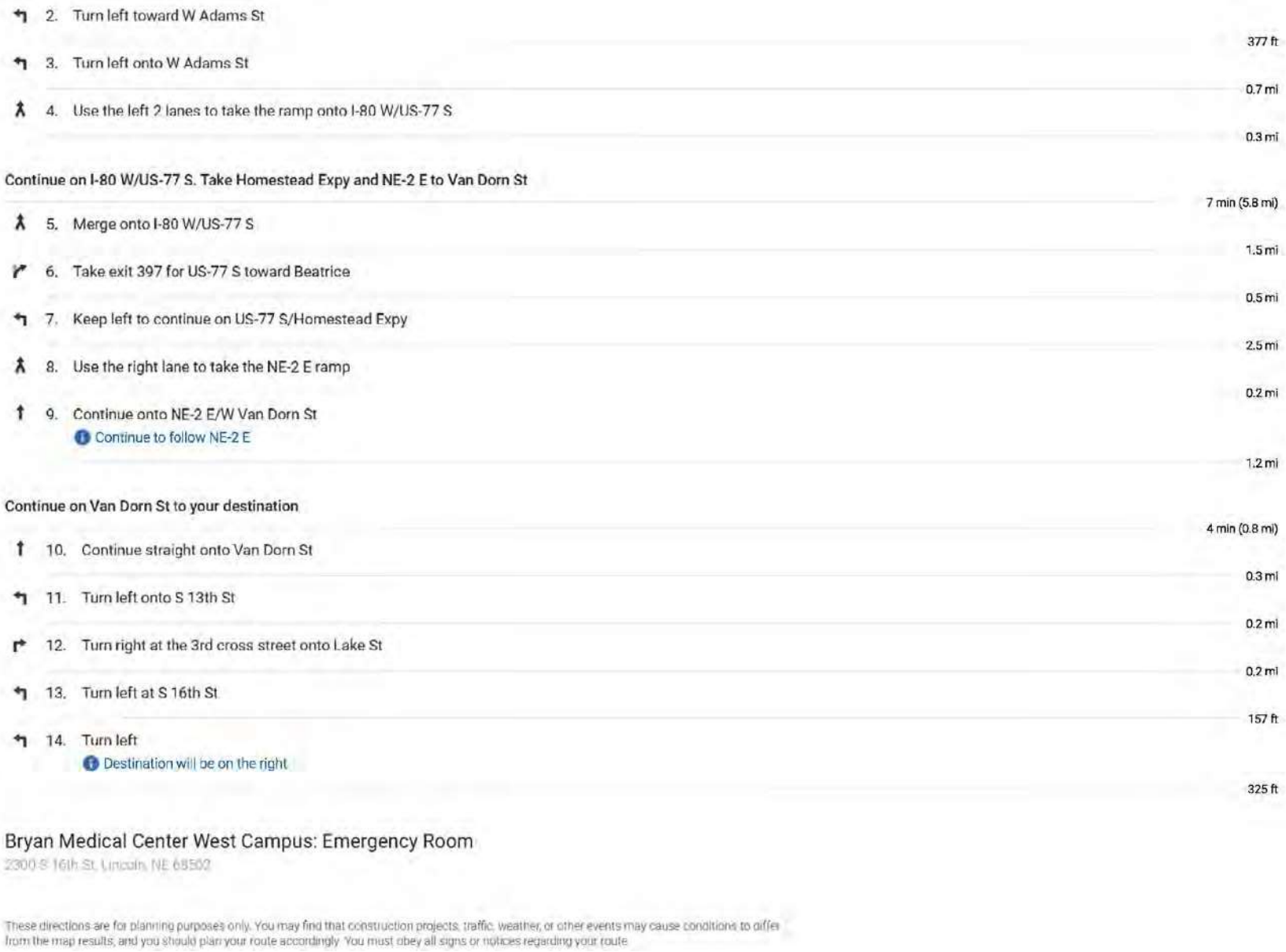


Figure 7. Lincoln Municipal Airport Emergency Medical Facility Route Map (continued)

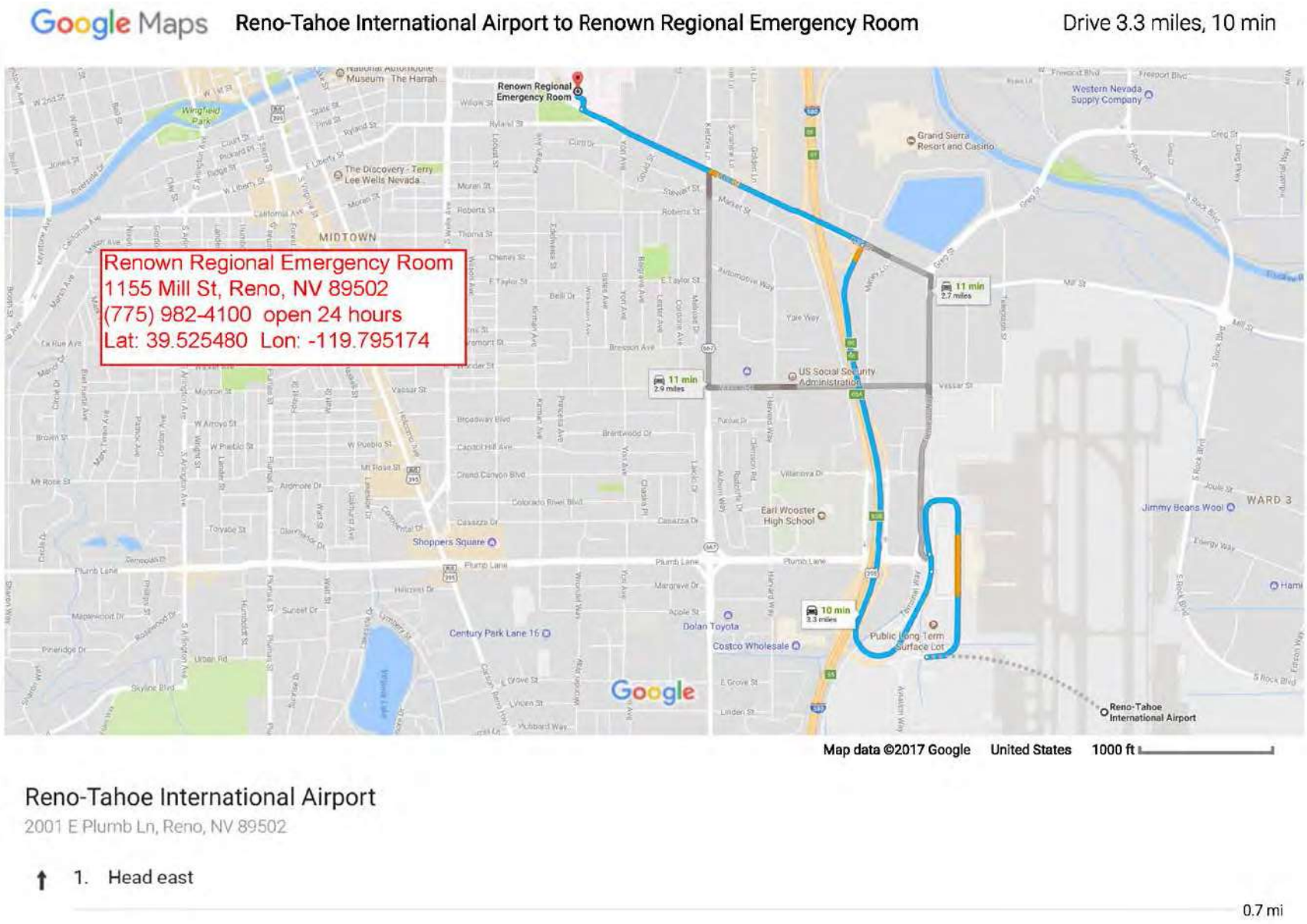


Figure 8. Reno Tahoe International Airport Emergency Medical Facility Route Map

Figure 8. Reno Tahoe International Airport Emergency Medical Facility Route Map (continued)

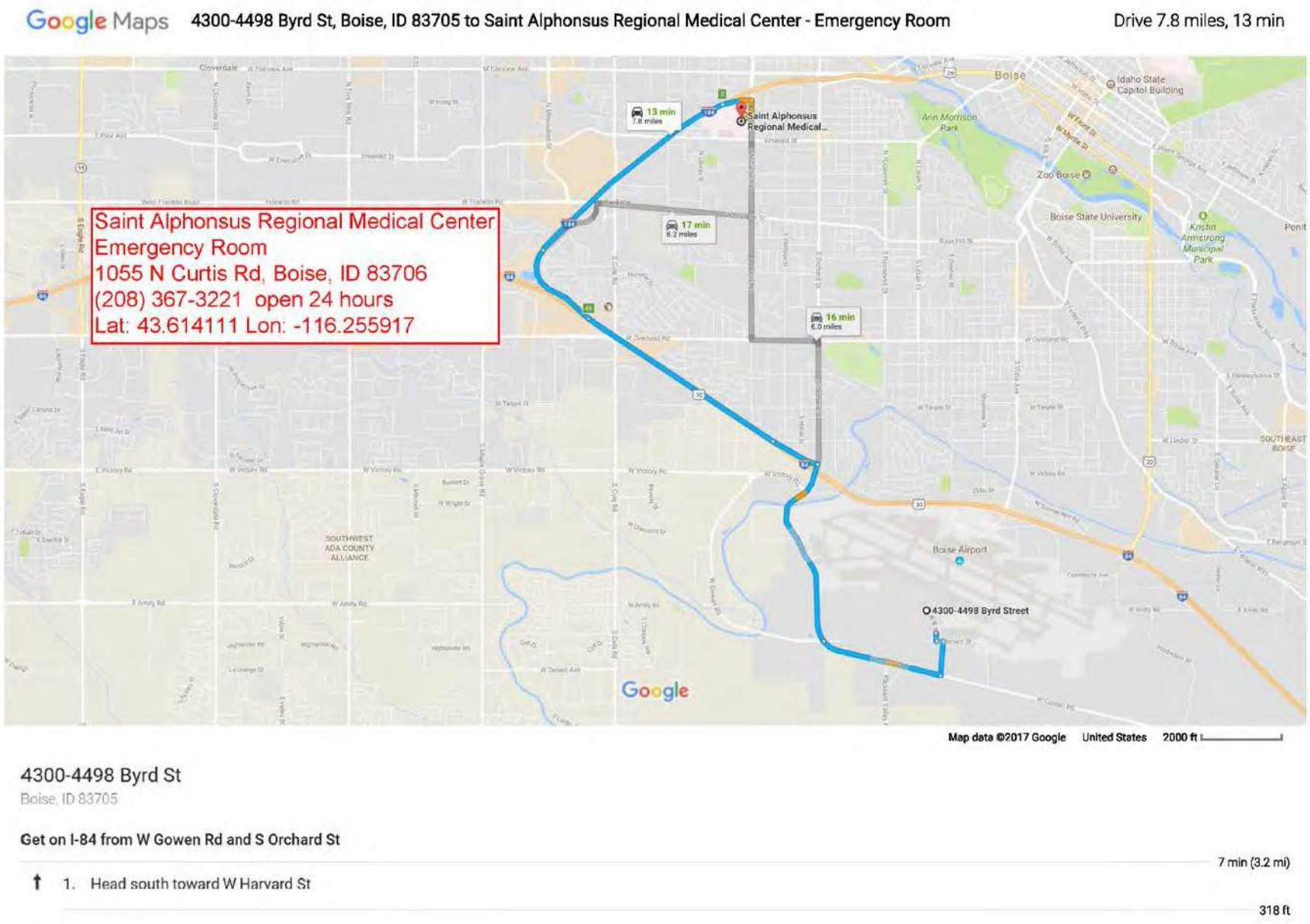


Figure 9. Boise International Airport Emergency Medical Facility Route Map

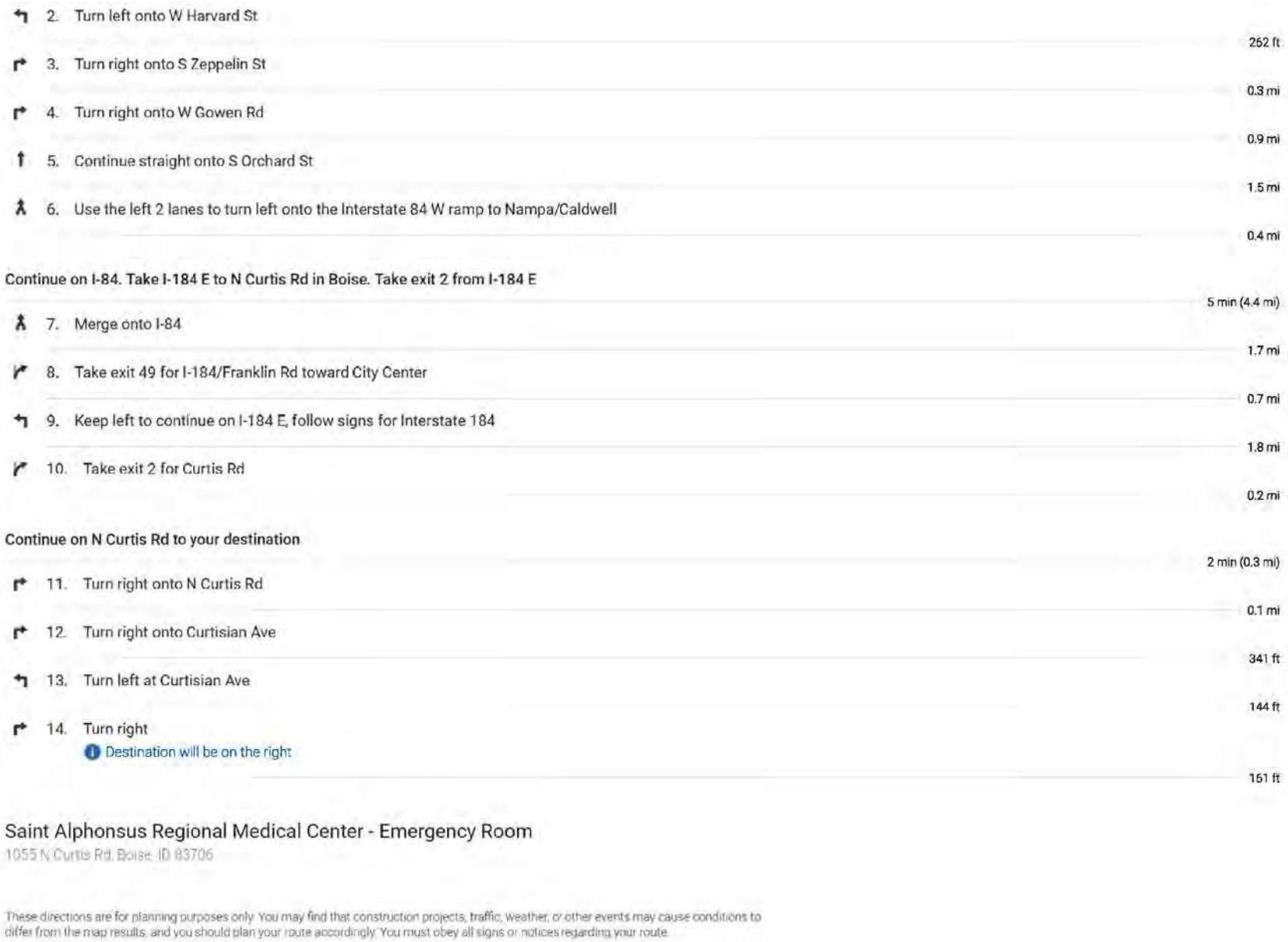


Figure 9. Boise International Airport Emergency Medical Facility Route Map (continued)

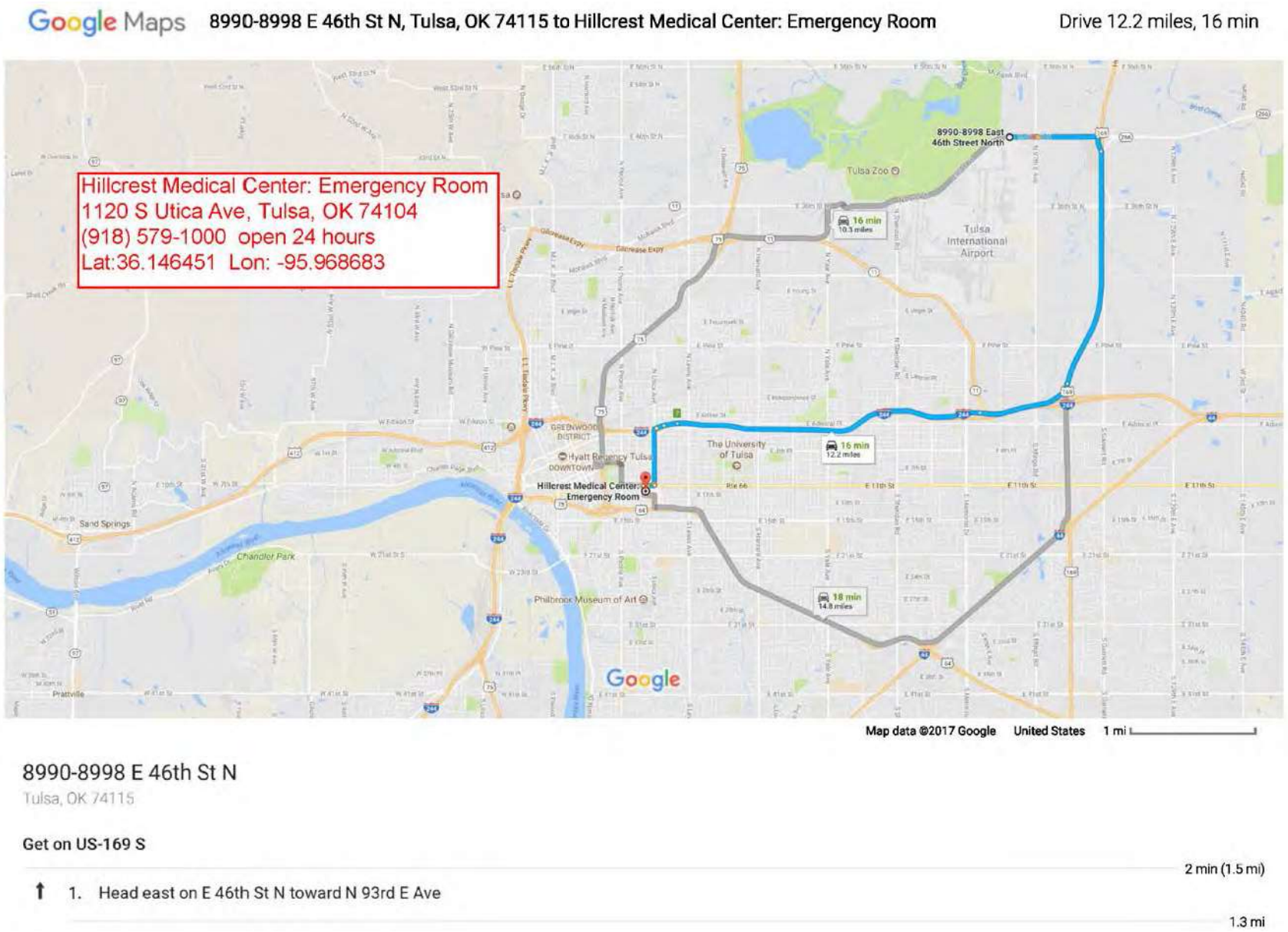


Figure 10. Tulsa International Airport Emergency Medical Facility Route Map

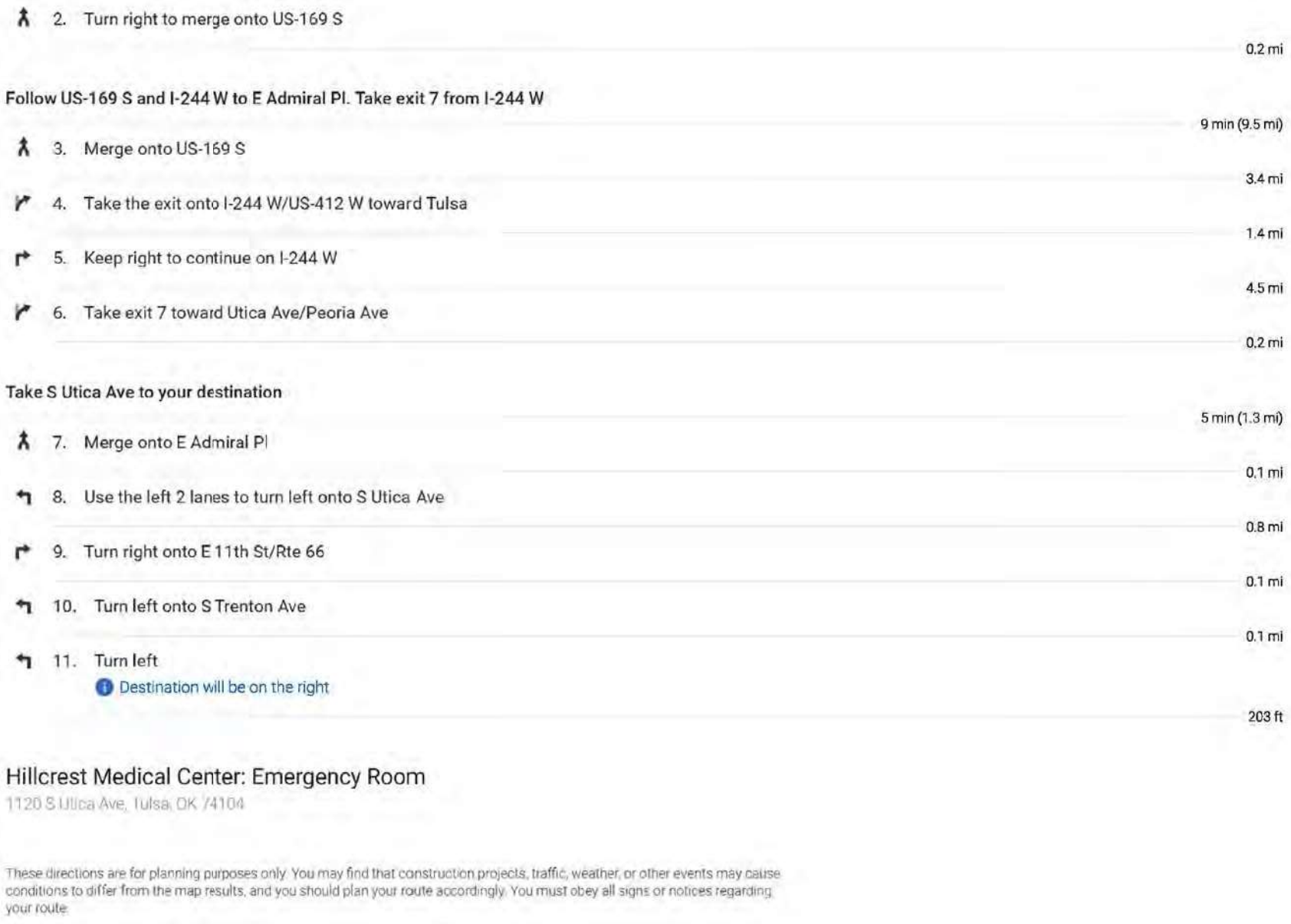


Figure 10. Tulsa International Airport Emergency Medical Facility Route Map (continued)

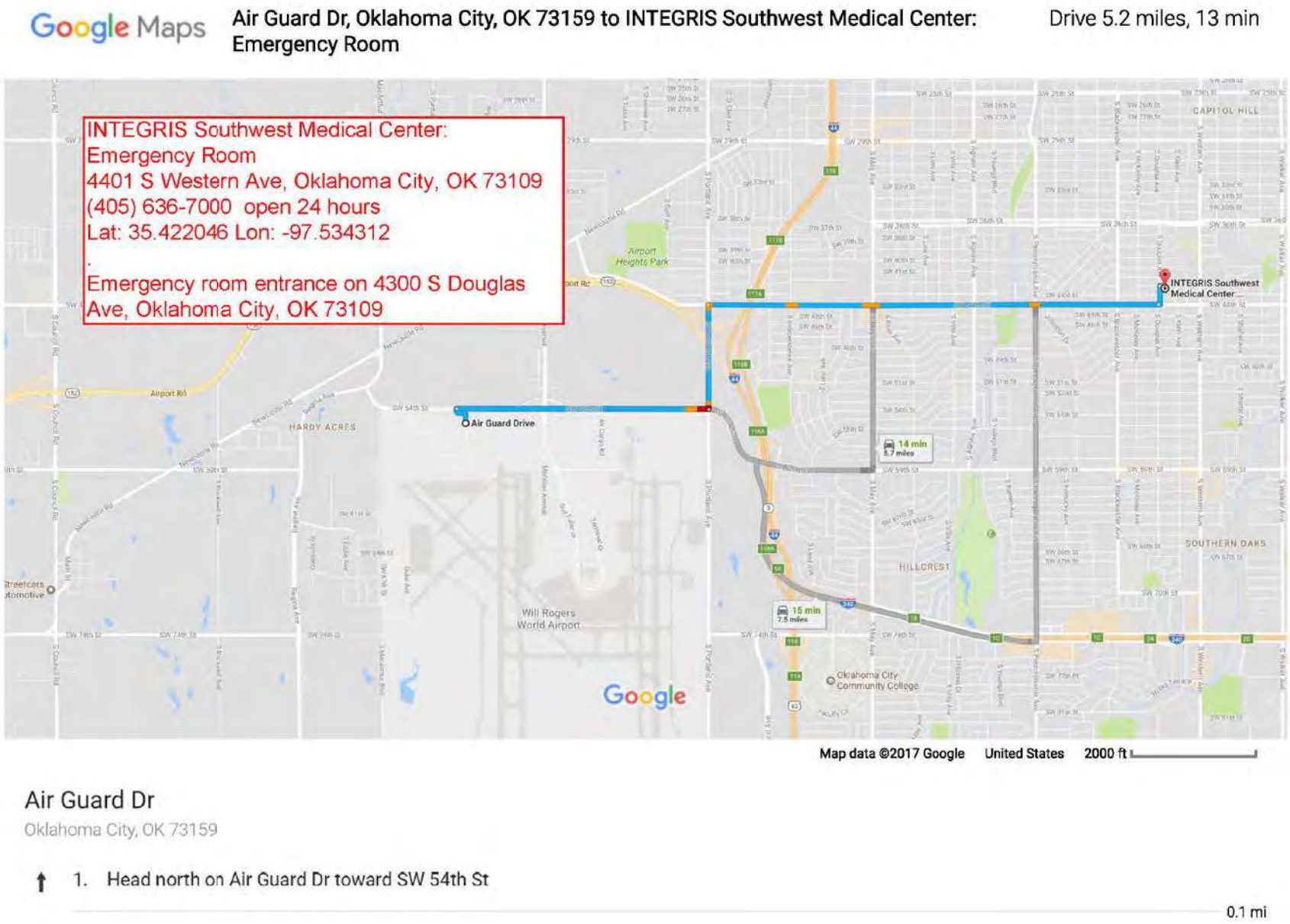


Figure 11. Will Rogers International Airport Emergency Medical Facility Route Map

2. Turn right onto SW 54th St

1.5 mi

3. Turn left onto S Portland Ave

0.6 mi

4. Turn right at the 1st cross street onto SW 44th St

2.7 mi

5. Turn left onto S Douglas Ave

0.1 mi

6. Turn right

102 ft

INTEGRIS Southwest Medical Center: Emergency Room

4401 S Western Ave, Oklahoma City, OK 73109

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Figure 11. Will Rogers International Airport Emergency Medical Facility Route Map (continued)

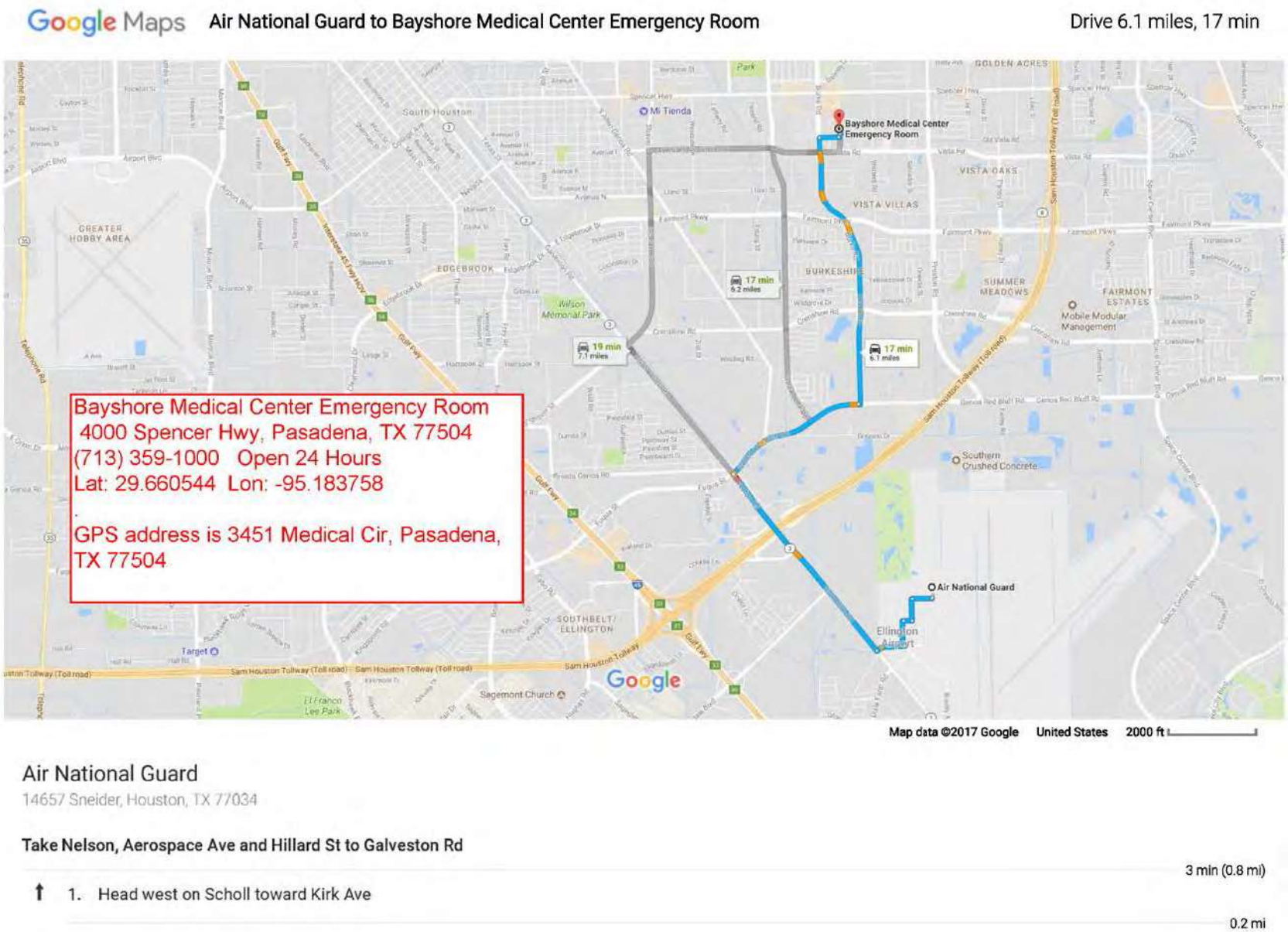


Figure 12. Ellington Field (Houston) Emergency Medical Facility Route Map

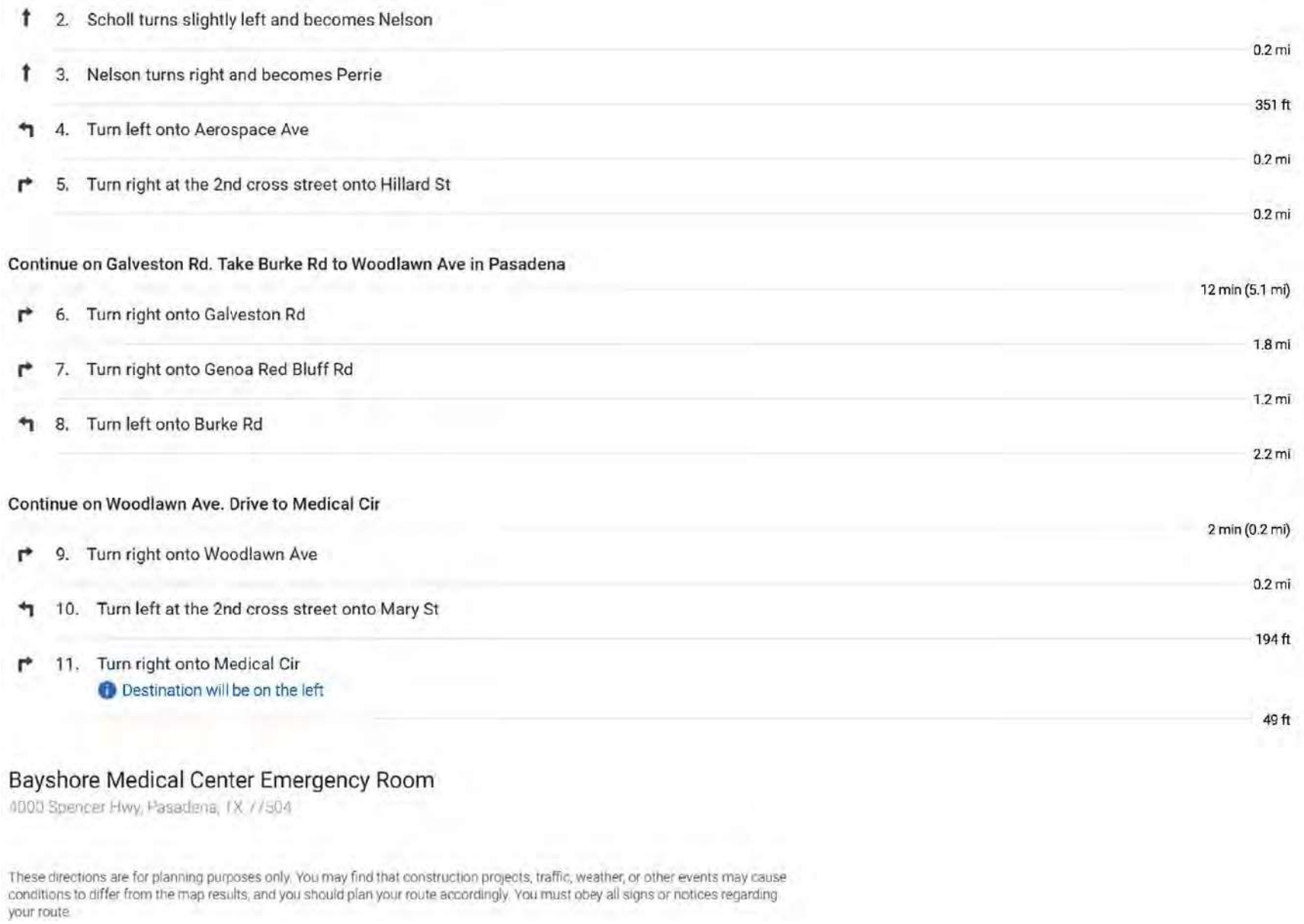


Figure 12. Ellington Field (Houston) Emergency Medical Facility Route Map (continued)

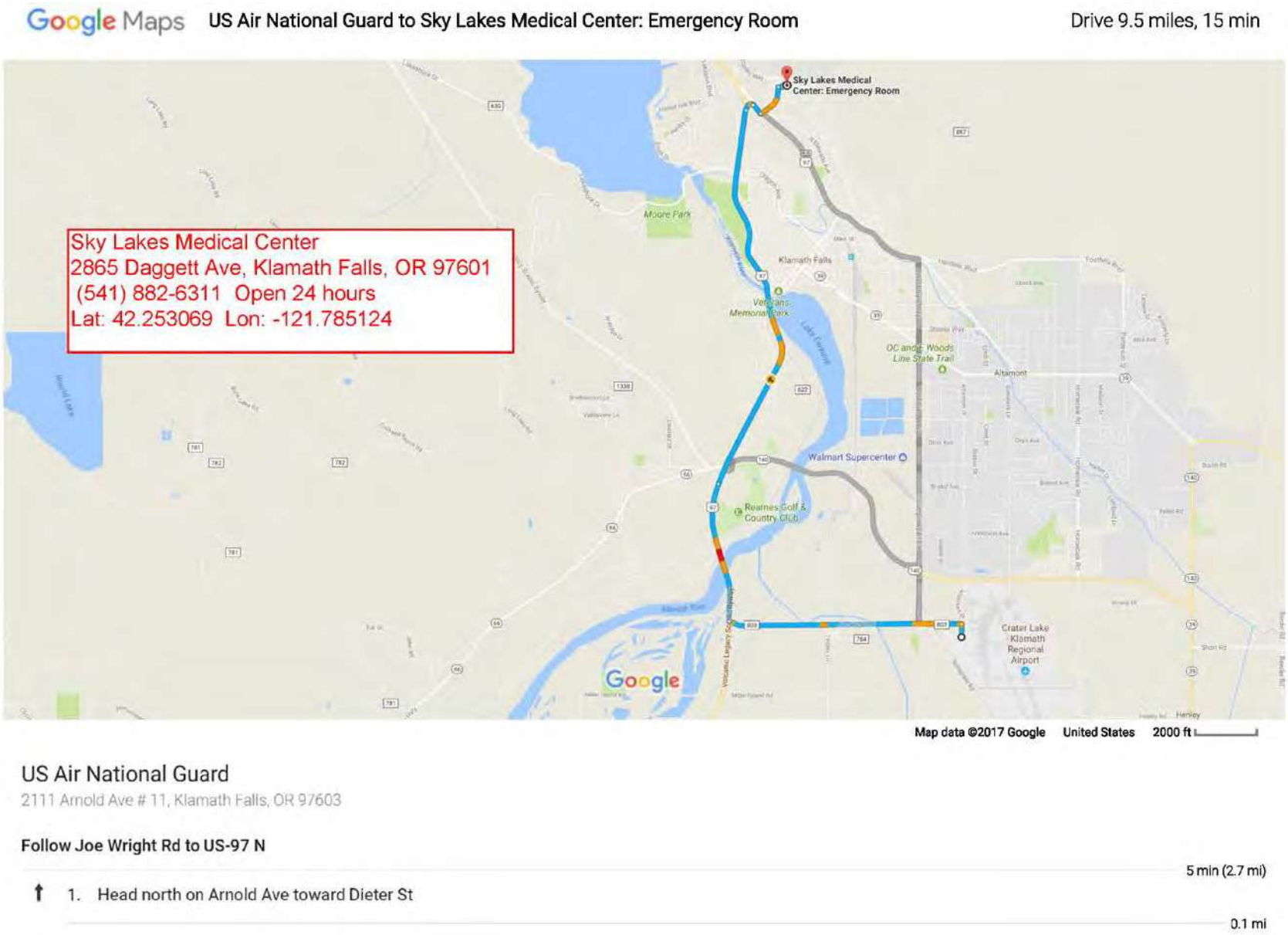


Figure 13. Klamath Falls International Airport (Kingsley Field) Emergency Medical Facility Route Map

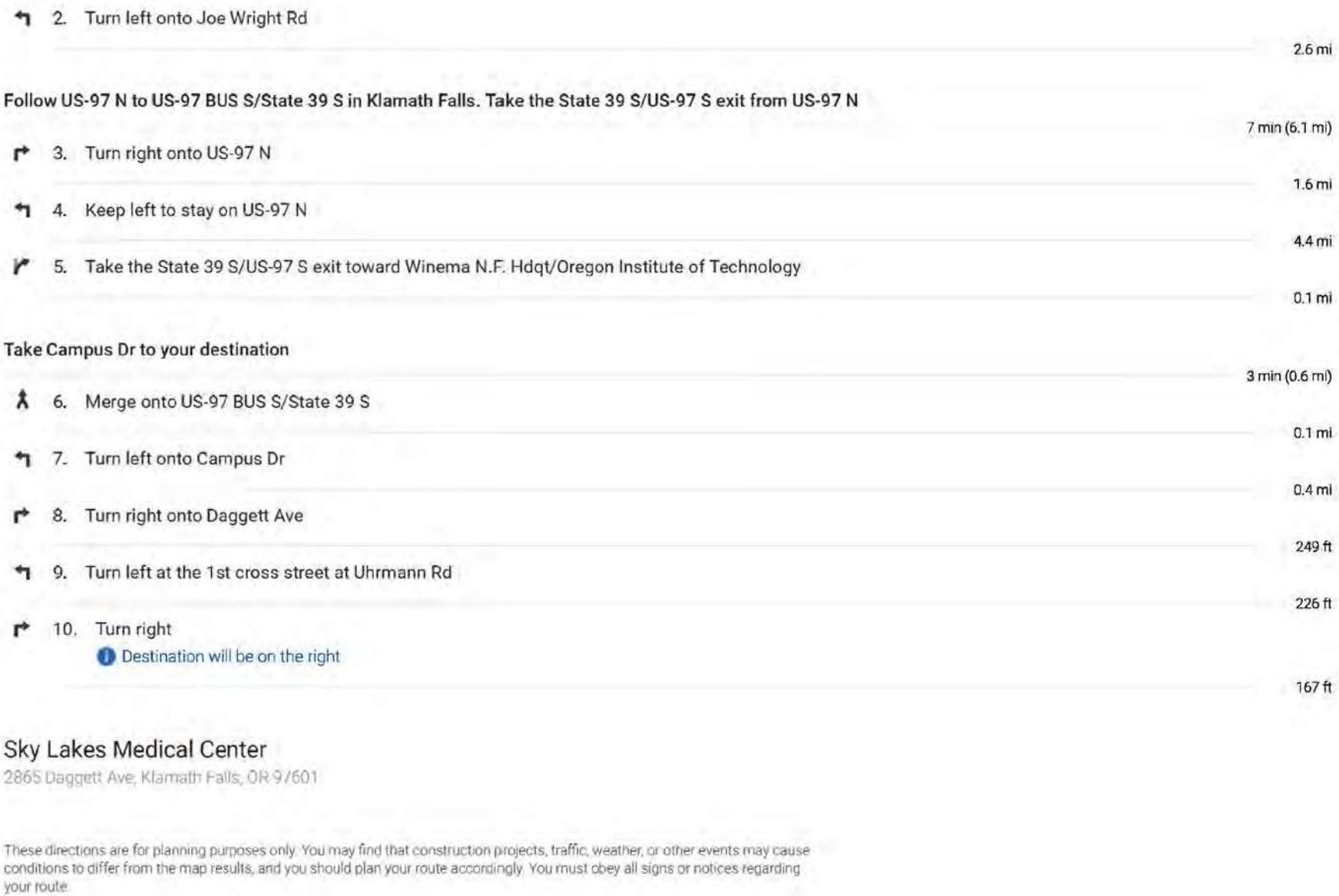


Figure 13. Klamath Falls International Airport (Kingsley Field) Emergency Medical Facility Route Map (continued)

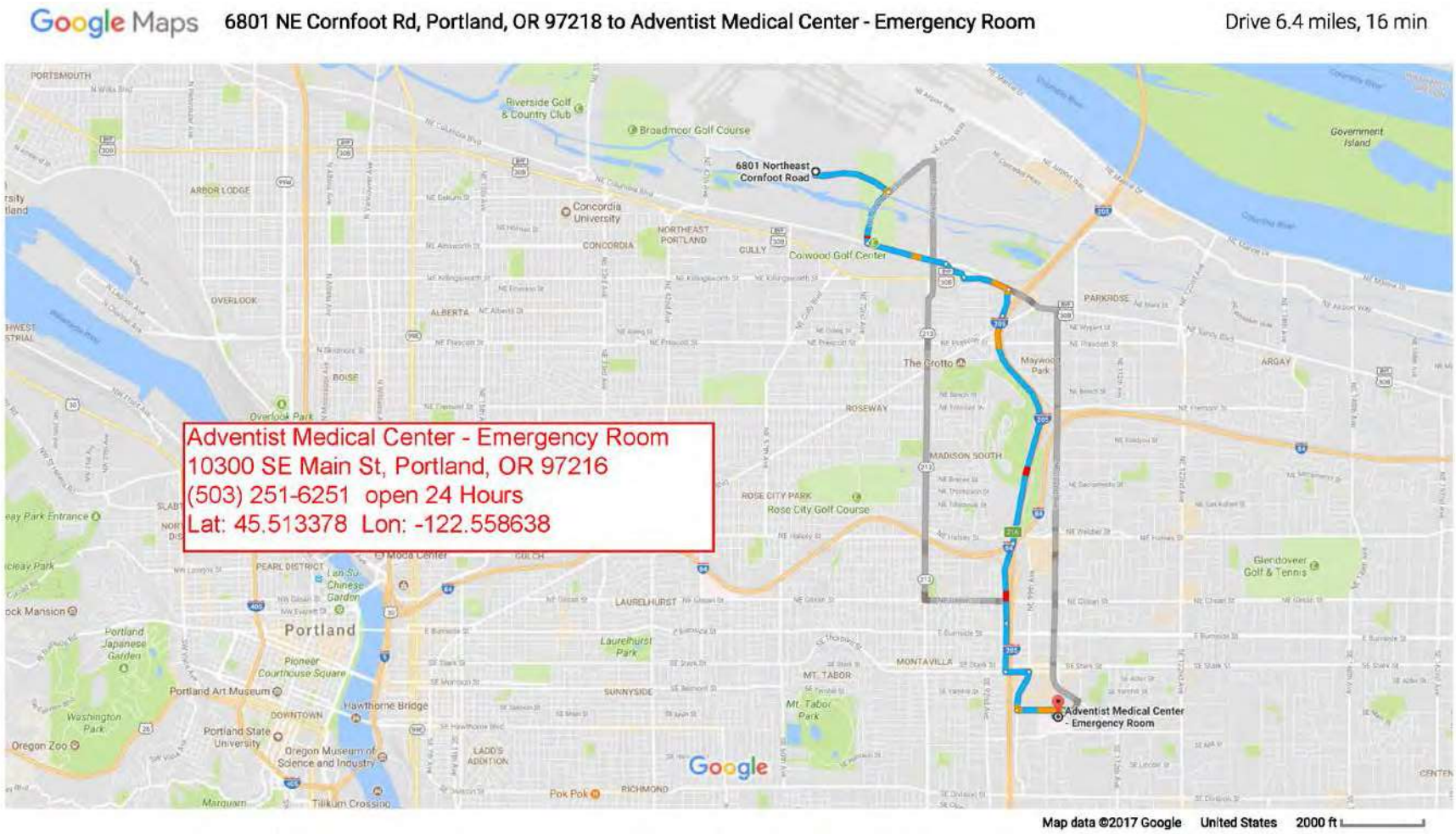


Figure 14. Portland International Airport Emergency Medical Facility Route Map

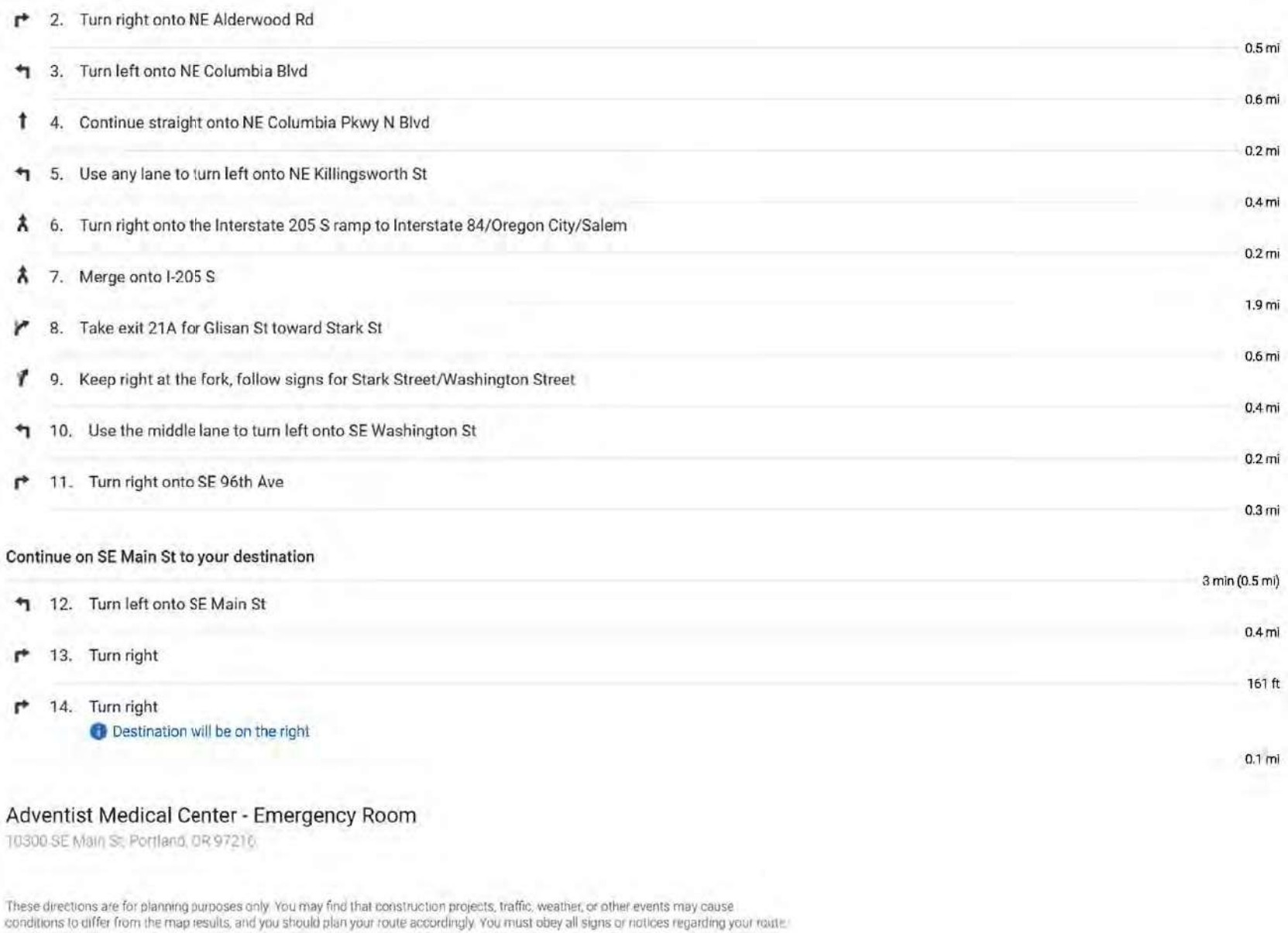


Figure 14. Portland International Airport Emergency Medical Facility Route Map (continued)

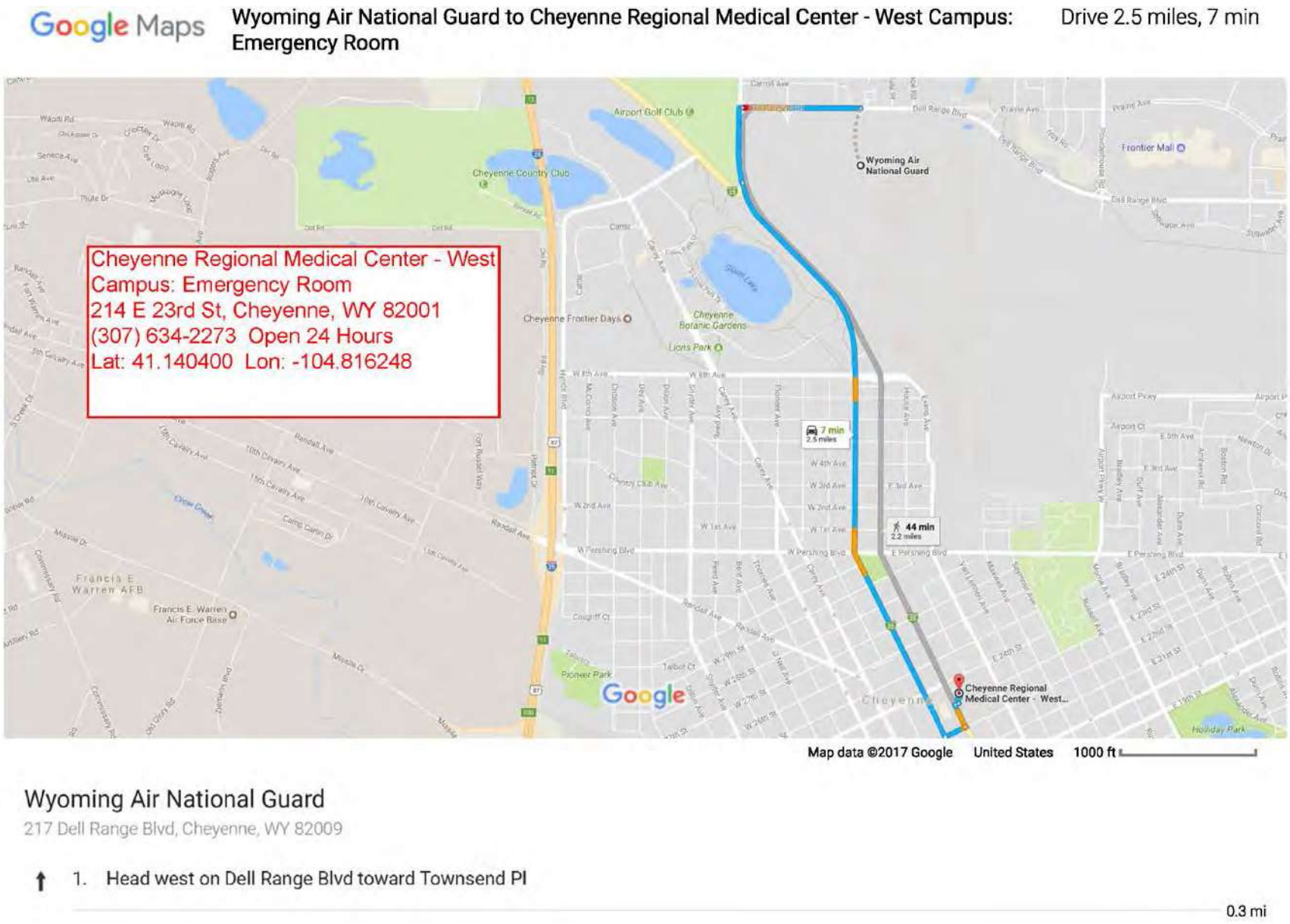


Figure 15. Cheyenne Municipal Airport Emergency Medical Facility Route Map

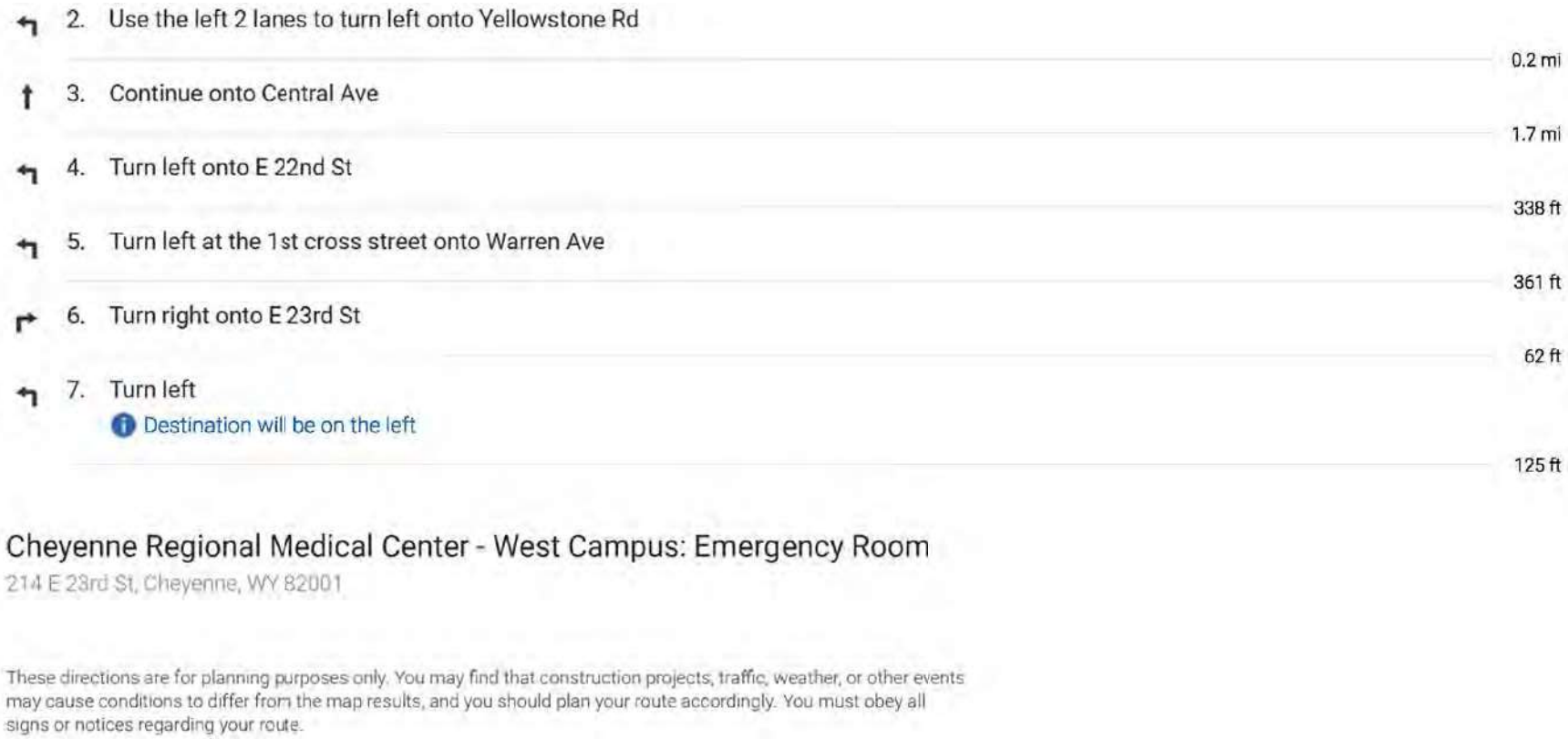


Figure 15. Cheyenne Municipal Airport Emergency Medical Facility Route Map (continued)

WORKCARE MEDICAL FACILITY

For non-emergency, work-related injuries to Leidos employees, WorkCare should be contacted at (888)-449-7787 for medical consultation. At the onset of a non-emergency, work-related injury or illness, notify the Site Health and Safety Officer (SHSO). The SHSO should then contact WorkCare's Incident Management team to report the incident. The WorkCare Case Manager will assess the injury telephonically and provide guidance, including recommendations regarding follow-up medical attention. During this process, the Case Manager will do the following:

- Explain the process to the caller.
- Determine the nature of the concern.
- Provide appropriate medical advice to the caller.
- Maintain appropriate medical confidentiality.
- Help the caller to execute the path forward, including referral to the appropriate local medical facility (with address or directions) where necessary.
- Send an email notification to the Leidos Environmental Health and Safety (EH&S) contact.

After assessing the incident, the Case Manager may recommend that seeking additional medical attention is unnecessary. If that recommendation has been made, the Case Manager will provide instructions on appropriate first-aid treatment over the telephone.

Injuries or illnesses to site personnel, however minor, and all calls to WorkCare shall be reported to EH&S and up the management chain as soon as is reasonably possible. Contact information for key personnel is provided in Table 2.

EMERGENCY EQUIPMENT REQUIRED ONSITE

Cellular or satellite phone (or verify immediate access to available landline).

First aid kit: 10-unit unitized kit or larger.

Fire extinguisher(s) rated at least 2A and 5B, serviced annually and inspected monthly.

Eyewash rated for 15-min continuous flow if corrosive chemicals are poured or used (pre-preserved sample containers excluded) for sample preparation/preservation or onsite water treatment.

Eyewash bottle if adding water to pre-preserved containers.

EMERGENCY REPORTING

The Field Manager (FM)/SHSO will immediately report injuries or illnesses, vehicle accidents, releases (e.g., hazardous material, hazardous waste, or uncharacterized waste), inspections by regulatory agencies, and any incident that could reasonably have caused a significant injury or property damage (e.g., fire, catastrophic equipment failure, capsized heavy equipment, etc.). The FM/SHSO will contact emergency response organizations (if needed) and the Project Manager. The Project Manager will notify the client (as appropriate), Division Manager, Program Manager, and EH&S Manager. If the Project Manager is not available, the FM/SHSO will make the other notifications. See EH&S Procedure 4.1, Incident Reporting and Investigation (Attachment A of this document), and Procedure 21, Regulatory Agency Inspections and Related Reporting (Leidos 2017), for details.

GENERAL HAZARD CONTROLS APPLICABLE TO ALL WORK IN THIS PROGRAM

This plan represents a good-faith effort to identify, evaluate, and prescribe controls for the hazards that will be posed by this work. Revisions to this plan will be documented. The Project Manager and EH&S Manager who originally approved the plan must approve revisions to the plan that result in

decreasing or eliminating a hazard control.

The FM/SHSO will ensure that applicable provisions of EH&S procedures are followed and that personnel have access to these procedures. Specifically applicable procedures include, but are not limited to, the following:

- Procedure 4, Incident Reporting and Investigation;
- Procedure 8, Hazard Communication Program;
- Procedure 12, Medical Clearance and Surveillance;
- Procedure 13, Personal Protective Equipment;
- Procedure 15, Hearing Conservation and Noise Control;
- Procedure 20, Hazardous Waste Operations;
- Procedure 21, Regulatory Agency Inspections and Related Reporting;
- Procedure 24, Hazardous Material Transportation;
- Procedure 26, Electrical Safety;
- Procedure 32, Vehicle Operation;
- Procedure 33, Subsurface Asset and Hazard Avoidance;
- Procedure 38, Machine Shop, Hand and Power Tool Safety;
- Procedure 43, Bloodborne Pathogen Exposure Control;
- Procedure 46, Management of Waste Generated at Project Sites;
- Procedure 50, Manual Lifting;
- Energy, Environmental Science and Engineering (EESE) Procedure 1, Behavior Based Safety;
- EESE Procedure 2, Subcontractor Environmental, Health and Safety; and
- EESE Procedure 3, Injury/Illness Management.

The FM/SHSO will perform and document daily safety inspections to verify that the work is performed safely, that the requirements of this plan are met, that the public is not endangered by this work, and that no environmental releases or violations occur as a result of this work. All onsite personnel will be responsible to report unsafe, or potentially unsafe, conditions to the FM/SHSO immediately. The FM/SHSO will take action to correct any work that he/she judges to be unsafe or non-compliant with this plan.

The FM/SHSO will establish local assembly points for each work zone so that, in the event of an evacuation, personnel can be accounted for at a pre-identified location. This should include a general assembly point a safe distance along the route of travel when traveling between remote work zones.

Leidos employees and subcontractors will be informed of the requirements of this plan and will be provided with copies or unrestricted access to this plan and must comply with the requirements of this plan. This plan does not relieve subcontractors of the regulatory requirement to provide a safe workplace for their employees. Leidos subcontractors are required to provide trained, experienced personnel and to operate equipment as required by the manufacturer's procedures, or the subcontractor's written standard operating procedures, and are required to supplement the requirements of this plan as necessary to ensure that their employees perform their specific tasks safely.

Project training will include at least the following:

- The FM/SHSO will have current hazardous waste safety training (40 hr, 3 days of on-the-job training [OJT], and 8-hr refresher within the past 12 months), hazardous waste supervisor training, and sufficient experience to understand the potential hazards.
- All other field personnel will have current hazardous waste safety training (including 40-hr, 3-day OJT, and current refresher).
- Subcontractor supervisors will be required to provide proof of current hazardous waste safety training (40 hr, 3 days OJT, and 8-hr refresher within the past 12 months), hazardous waste supervisor

training, and sufficient experience to understand the potential hazards.
The FM/SHSO will present a project kickoff safety briefing to cover this plan, physical hazards, hazardous contaminants and chemicals, required hazard controls, and emergency contacts and additional safety briefings as needed (at least once per week). During drilling operations, at least two people onsite will have current first aid, cardiopulmonary resuscitation, and bloodborne pathogen training. During groundwater sampling activities, only one person may be onsite. When working alone, the FM is required to conduct daily check-ins with the Task Manager (morning, noon, and at the end of the day). Skid steer operators will provide documentation of current training for the class of equipment to be used. The FM/SHSO will maintain documentation of completed training onsite. See Procedure 8, Hazard Communication Program; Procedure 20, Hazardous Waste Operations; and Procedure 22, Powered Industrial Trucks, for details. Additional training may include, but not be limited to, Procedure 15, Hearing Conservation and Noise Control.
Field personnel must be enrolled in a medical surveillance program and have current hazardous waste medical clearance.
Field personnel will utilize personal protective equipment (PPE) as directed in this plan and by Procedure 13, Personal Protective Equipment, and Procedure 15, Hearing Conservation and Noise Control. PPE for fieldwork will include at least safety glasses with side shields; appropriate shoes (up to safety-toe shoes with metatarsal guards); and work clothing, including long pants and shirts with sleeves, hard hats if overhead hazards are present, hearing protection in noisy environments (e.g., near DPT/drill rigs, flight line, or generators), nitrile gloves if handling (potentially) hazardous chemicals, and heavy-duty work gloves for material handling. No Tyvek® clothing will be utilized, and clothes treated with stain- or rain-resistant coatings will be avoided or required to have gone through several washings. It is not anticipated that any of the planned sediment and/or surface water sample locations will require that hip waders and/or a personal flotation device (PFD) be worn. The FM/SHSO will evaluate PPE during routine inspections and will ensure that PPE is appropriate to the task. If site conditions appear to require the implementation of respiratory protection, the FM/SHSO will suspend the impacted task and contact the Project Manager and the health and safety reviewer for guidance.
Sediment and surface water sampling will be conducted when water levels within the stormwater outfall, drainage ditch, or retention pond are low (i.e., below 2 ft). Monitor the weather forecast and do not begin sampling if a precipitation event is predicted to occur before sampling is complete. Hip waders must be worn and a change of clothes must be available if sampling in cold weather. If sampling surface water greater than 2 ft deep (i.e., near stormwater retention ponds), a PFD must be worn and a throw rope with ring buoy must be easily accessible in the event that a worker loses his/her footing in the water and requires rescue.
Insect bites/stings/illnesses and tick-borne illnesses may represent a hazard for fieldwork during active times of the year for these organisms. Identify active times of the year/day and schedule activities to minimize exposure. Inspect the area for evidence of these organisms. Avoid areas where ticks/stinging insects are likely to be encountered. Inform the FM/SHSO of any allergies to stings and the location of epinephrine pens (i.e., EpiPen®). Clothing treated with permethrin will be used by project personnel working outside of buildings/off pavement. N,N-Diethyl-meta-toluamide (i.e., DEET) may be used to repel insects in addition to permethrin-treated clothing. Pants legs will be taped to prevent entry of ticks/ants. Head nets may be needed during mosquito swarming.
Prior to any drilling, the location must be verified free of subsurface assets (tanks) or utilities. See EH&S Procedure 33, Subsurface Asset and Hazard Avoidance, for details. The drilling subcontractor is not relieved of their responsibility to ensure the safety of drilling locations.
Venomous snakes may represent a hazard for fieldwork during active times of the year for these organisms. Identify active times of year/day and schedule activities to minimize exposure. Inspect the area for evidence of these organisms. Avoid areas where these organisms are likely to be encountered.

Relocate the sample site and avoid disturbing the organism. Do not approach or attempt to drive off these animals. The venomous snakes that could be encountered at these facilities include cottonmouths, copperheads, and rattlesnakes. Where a potential to encounter venomous snakes exists or where there is vegetation that prevents one from seeing the ground, use snake chaps as additional PPE.
Field activities involving lifting, bending, and twisting can contribute to muscle strains, including injury to the back. Proper positioning during movements will minimize risks of injury. All employees must comply with EH&S Procedure 50, Manual Lifting.
Onsite aircraft engines and field equipment, such as drill rigs, generators, compressors, and concrete saws, will generate noise that can contribute to hearing loss. Hearing protection is to be worn whenever noise levels are anticipated to exceed 85 decibels (typically within 25 ft of the source of noise). Personnel shall remain 25 ft from the noise source where possible.
Rotating machinery poses a risk of entanglement. Employees are to avoid wearing lose clothing, oversized gloves, jewelry, and/or other attire that might become trapped between moving parts when required to work close to rotating parts. Rotating parts should be shielded, and all non-essential employees to the task at hand should maintain an appropriate distance from moving components.
Portable electrical tools will be connected through a ground fault circuit interrupter. No energized electrical components will be exposed to potential personnel contact. Conductive materials will be kept at least 10 ft from overhead power lines.
Drill rigs and compressors used for well development use pressurized air and fluids that pose a risk of injury. All equipment using pressurized fluids/air must be properly maintained and inspected prior to use for any signs of damage. All connections must be secure prior to operation. Equipment showing signs of damage or excessive wear and tear may not be used.
Drill rig masts and drill strings pose overhead hazards. An exclusion zone twice the height of the drill mast will be setup around the rig, and only essential personnel allowed within. Hard hats must be worn within 25 ft of an overhead hazard.
All vehicle operators must have valid driver's licenses and operate in compliance with applicable laws and regulations. Prohibited actions include driving while distracted and driving while using a cell phone. See EH&S Procedure 32, Vehicle Operation, for details.
Prior to the field start, the weather should be monitored and potential severe weather conditions should be tracked. The field crew should not mobilize to the site if a hurricane or significant weather event is projected to make landing in the vicinity of the site during the scheduled fieldwork. The field crew also should not mobilize to the field following a hurricane or significant weather event in the area unless safe travel and field conditions can be confirmed. Weather conditions during the field job should be monitored. In the event of an incoming hurricane, all field crew should evacuate inland.
No confined space entry is permitted.
Check the daily weather report before mobilizing to the site. Weather conditions will be monitored by the FM. Identify the nearest sturdy storm shelter. Outdoor fieldwork will not be conducted during thunderstorms, and fieldwork will not resume until at least 30 min have passed since observing lightning or hearing thunder.

General controls for preventing heat stress-induced illness include making fluids readily available, using the buddy system, taking scheduled or unscheduled breaks in a cooler area, providing shade, scheduling work during cooler parts of the day, providing forced ventilation, encouraging physical fitness, and application of prudent judgment by the FM/SHSO and crew (Adapted from the *American Conference of Governmental Industrial Hygienists Threshold Limit Value Booklet* [ACGIH 2017]):

- If ambient temperatures reach or exceed 80ºF, workers will be allowed to take unscheduled breaks, as needed, in a cooler area. A break is defined as minimal physical activity (sitting or standing) and should be accomplished in the shade, if possible.

- If ambient temperatures reach or exceed, or are expected to reach or exceed, 80ºF, site-specific training will include heat stress recognition and control and first aid for heat stress-induced illnesses.

- If ambient temperatures reach or exceed, or are expected to reach or exceed, 80ºF, cooled water and Gatorade® or equivalent drink will be made conveniently available to site workers, and site workers will be encouraged to drink frequently.

Critical factors in preventing cold stress disorders are adequate clothing and staying dry. The FM/SHSO will ensure the capability to quickly move individuals who become wet to a sheltered, warm area. The following specific steps will be taken (adapted from the *American Conference of Governmental Industrial Hygienists Threshold Limit Value Booklet* [ACGIH 2017]):

- If ambient temperatures are 40ºF or below, site training will include prevention of cold injury, cold injury symptoms, and cold injury first aid.

- A heated break area will be provided if ambient temperatures are below 32ºF.

- At a minimum, breaks will be taken in a warm area every 120 min if ambient temperatures are below 32ºF.

Workers will maintain a safe distance equivalent to the full, extended reach of all moving/mobile equipment. The counterweight swing area will be posted with danger tape. Approach mobile/moving equipment only after getting permission of the operator. Maintain visual contact with equipment operators at all times.

Flammable and combustible liquids (e.g., gasoline) will be transported and stored in metal containers approved by Factory Mutual, Underwriters Laboratories, or equivalent or in containers provided by the vendors (e.g., isopropanol). Containers of hazardous chemicals must be labeled to indicate contents and hazard. Safety Data Sheets (SDSs) for hazardous chemicals must be available onsite (see Attachment B). Shipment and transportation of hazardous materials must be performed per U.S. Department of Transportation (DOT) or International Air Transport Association (IATA) requirements. See EH&S Procedure 24, Hazardous Material Transportation.

An exclusion zone (at least barricade tape) will be established around any work that poses a risk of exposure to hazardous contaminants, hazardous chemicals, or physical hazards to exclude unauthorized personnel. No food or drink will be allowed in exclusion zones. Personnel will wash their hands prior to eating or drinking. The FM/SHSO will determine if additional controls, such as sawhorse barricades, traffic cones, or additional personal decontamination, are needed.

Regulated (and potentially regulated) project waste will be managed per the intent of EH&S Procedure 46, Management of Waste Generated at Project Sites. Containers of potentially regulated wastes must be labeled or indelibly marked to indicate at least the contents (including the physical state), date placed in container, source, and client's name. Hazardous waste should not be transported on public roadways.

Site Contaminants. Site contaminants, such as VOCs associated with jet fuel, may be present during the proposed fieldwork in environmental media. PFOS/PFOA are not anticipated to be encountered at concentrations that would pose a risk to human health via dermal or inhalation pathways; however, these

compounds are potentially present in local groundwater above health advisory levels. Site contaminants are not expected to be encountered at concentrations that would present an occupational exposure hazard; however, the potential exists for low concentrations of any of these chemicals to be present within environmental media, and proper precautions (i.e., PPE) should be used to prevent exposure.

Chemical Tools. The hazardous chemical tools to be used during the proposed fieldwork include gasoline, isobutylene, Liquinox®, and Trizma. Gasoline and diesel fuel may be present onsite in portable containers to power equipment, such as vehicles and generators. Isobutylene is a calibration gas that will be used to calibrate the photoionization detector for breathing zone monitoring. Liquinox® is a laboratory-grade non-phosphate detergent that will be used for sampling equipment decontamination. Trizma is a preservative that will be used for surface and groundwater samples. Containers of these hazardous chemicals, plus additional chemical tools, such as spray paint and insect repellant, must be labeled to indicate contents and hazard. SDSs for all hazardous materials must be available onsite (see Attachment B). Shipment and transportation of hazardous materials must be performed per DOT or IATA requirements. See EH&S Procedure 24, Hazardous Material Transportation, for guidance.

The FM/SHSO will ensure that equipment and supplies are available to control and remove potential spills of chemicals or contaminants. The required equipment and supplies will vary by project and type and quantity of contaminants/chemicals and may include sorbent pads, granular sorbent, sorbent boom, open-top drums, shovels, etc.

Each employee is empowered and expected to stop his or her own work or the work of co-workers if any person's safety or the environment is at risk. The FM/SHSO is expected to support and reinforce this expectation. Stopped work will not resume until the hazard has been controlled and a review has been performed.

Each major task must have an activity hazard analysis (AHA), and the work must be performed as required by the AHA.

REFERENCES

ACGIH (American Conference for Governmental Industrial Hygienists) 2017. *American Conference of Governmental Industrial Hygienists Threshold Limit Value Booklet*.

ANG (Air National Guard) 2009. *Air National Guard Environmental Restoration Program Investigation Guidance, Air National Guard Readiness Center, Andrews Air Force Base, Maryland*, Final, September.

Leidos 2017. *Corporate Environmental, Health and Safety Program Manual*, May.

Navy (U.S. Department of the Navy) 2015. *Memorandum - Testing for Perfluorochemicals (PFCs) in Drinking Water*, Available online at: http://www.secnav.navy.mil/eie/Documents/15-12-24-BUMED-PFC-Memo-Signed-w-Enclosures.pdf, December.

NGB (National Guard Bureau) 2017. *Statement of Objectives for FY17 Phase III Regional Site Inspections for Perfluorinated Compounds at Multiple Air National Guard Installations*, Project Number ANGH20177151, January 2017; Revised February.

ACTIVITY HAZARD ANALYSIS WORK ACTIVITY: WELL DEVELOPMENT AND SAMPLING OF TEMPORARY PIEZOMETERS AND PERMANENT MONITORING WELLS		
PPE	**Selected**	**Comment**
Safety Shoes	X	See note
Hard Hat		
Safety Glasses with Side Shields	X	
Fire-Resistant Clothing		
Face Shields		
Goggles		
Lifeline/Body Harness		
Hearing Protection	X	In vicinity of flight line or aircraft maintenance activities
Air-Purifying Respirator		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Floatation Device		
Gloves	X	Nitrile gloves for all sampling activities and handling potentially contaminated equipment
Safety Cones/Barricades	X	To control/alert traffic and exclude unauthorized personnel
Safety Vest	X	If near active traffic areas
Knee Pads		
Snake Boots/Chaps/Guards	X	As needed
Caution/Danger Tape	X	As needed to exclude unauthorized personnel

NOTE: Do not wear water-resistant, waterproof, or stain-treated clothing during the field program. Field clothing made of synthetic and natural fibers (preferably cotton) is acceptable. Field clothing should be laundered avoiding the use of fabric softener. Preferably, field gear should be cotton construction and well laundered (a minimum of six times from time of purchase). New clothing may contain perfluorinated compound (PFC)-related treatments. Do not use new clothing while sampling or sample handling.

Do not wear clothing or boots containing Gore-Tex® during the sampling program as it consists of a PFC membrane.

All safety footwear will consist of steel-toed boots made with polyurethane and polyvinyl chloride.

Do not wear Tyvek® clothing onsite as it contains fluorinated compounds.

Disposable nitrile gloves must be worn at all times. Further, a new pair of nitrile gloves should be donned prior to the following activities at each sample location:

- Decontamination of reusable sampling equipment;
- Contact with sample bottles or water containers;
- Insertion of anything into the well (e.g., high-density polyethylene tubing, HydraSleeve bailer, etc.);
- Insertion of silicon tubing into the peristaltic pump;
- Completion of monitoring well purging, prior to sample collection;
- Handling of any quality assurance/quality control samples, including field blanks and equipment blanks; and
- After handling any non-dedicated sampling equipment, contact with non-contaminated surfaces, or when judged necessary by field personnel.

(Source: Navy 2015)
PPE = Personal protective equipment.

Well Development and Sampling of Temporary Piezometers and Permanent Monitoring Wells		
Job Step	**Potential Hazard**	**Critical Action**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 32, Vehicle Operation (e.g., valid driver's license, seat belt use, routine vehicle inspections, and no cell phone use while driving)
Sampling/ Development	General safety hazards	Level D PPE (no Tyvek® or Gore-Tex®), buddy system, HAZWOPER 40-hr training, and standard procedures
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Avoid trip hazards and wet surfaces. Ensure housekeeping keeps area clear of equipment and lines
	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic and parking lots. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Maintain awareness of parked and moving vehicles in the surrounding area. Artificial lighting provided for work after twilight
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Noise	Hearing protection in the vicinity of the flight line or aircraft maintenance areas
	Lifting (musculoskeletal injuries) hazards	Compliance with EH&S Procedure 50, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. Clear area of all unnecessary equipment and slip/trip hazards. Additional help will be obtained by workers or mechanical assistance will be used onsite if equipment to be moved is unwieldy, has a weight >50 lb, or has to be moved by maneuvering through awkward positioning
	Unauthorized personnel in work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone

Well Development and Sampling of Temporary Piezometers and Permanent Monitoring Wells		
Job Step	**Potential Hazard**	**Critical Action**
	Fire	Fire extinguisher rated 2A and 5B (serviced annually and inspected monthly) in all fuel use areas
	Chemical exposure	Breathing zone monitoring with 10.6-eV PID; stop work action level of 5 ppm sustained for over 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Wear snake chaps if one cannot see the ground due to vegetation. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
Containing and managing decontamination fluids, purge water, and other IDW	General safety hazards	Level D PPE, buddy system, HAZWOPER 40-hr training, and standard procedures
	Slips/Trips/Falls	Visually scan area ahead for hazards before proceeding. Avoid trip hazards and wet surfaces
	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades. Maintain awareness of parked and moving vehicles in the surrounding area. High-visibility safety vests in traffic areas. Artificial lighting provided for work after twilight
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Unauthorized personnel in work zone	Exclude non-site workers from work area using barrier tape
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Noise	Hearing protection in the vicinity of the flight line or aircraft maintenance areas

Well Development and Sampling of Temporary Piezometers and Permanent Monitoring Wells		
Job Step	**Potential Hazard**	**Critical Action**
	Chemical exposure	Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Wear snake chaps if one cannot see the ground due to vegetation. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	IDW control	Label or mark IDW containers to indicate container number, contents (including the physical state), investigation location, date of collection, and client name. Ensure that storage area provides adequate protection against physical damage or disturbance

DEET = N,N-diethyl-meta-toluamide.
DOT = U.S. Department of Transportation.
EH&S = Environmental health and safety.
FM = Field Manager.
FOD = Foreign object debris.
HAZWOPER = Hazardous Waste Operations and Emergency Response.
IDW = Investigation-derived waste.
MUTCD = Manual on Uniform Traffic Control Devices.
PID = Photoionization detector.
PPE = Personal protective equipment.
ppm = Parts per million.
SDS = Safety Data Sheet.
SHSO = Site Health and Safety Officer.

ACTIVITY HAZARD ANALYSIS		
WORK ACTIVITY: SOIL SAMPLING VIA HAND AUGER		
PPE	**Selected**	**Comment**
Safety Shoes	X	See note
Hard Hat	X	Within 25 ft of DPT or other overhead hazards[a]
Safety Glasses with Side Shields	X	
Fire-Resistant Clothing		
Face Shields		
Goggles		
Lifeline/Body Harness		
Hearing Protection	X	In vicinity of flight line or aircraft maintenance activities or within 25 ft of DPT/drill rig, concrete saw, or drill[a]
Air-Purifying Respirator		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Floatation Device		
Gloves	X	Nitrile gloves for all sampling activities. Heavy-duty work gloves for material handling
Safety Cones/Barricades	X	To control/alert traffic and exclude unauthorized personnel
Safety Vest	X	If near active traffic areas
Knee Pads		
Snake Boots/Chaps/Guards	X	As needed
Caution/Danger Tape	X	As needed to exclude unauthorized personnel

NOTE: Do not wear water-resistant, waterproof, or stain-treated clothing during the field program. Field clothing made of synthetic and natural fibers (preferably cotton) is acceptable. Field clothing should be laundered avoiding the use of fabric softener. Preferably, field gear should be cotton construction and well laundered (a minimum of six times from time of purchase). New clothing may contain perfluorinated compound (PFC)-related treatments. Do not use new clothing while sampling or sample handling.

Do not wear clothing or boots containing Gore-Tex® during the sampling program as it consists of a PFC membrane.

All safety footwear will consist of steel-toed boots made with polyurethane and polyvinyl chloride.

Do not wear Tyvek® clothing onsite as it contains fluorinated compounds.

Disposable nitrile gloves must be worn at all times. Further, a new pair of nitrile gloves should be donned prior to the following activities at each sample location:

- Decontamination of reusable sampling equipment;
- Contact with sample bottles or water containers;
- Insertion of anything into the well (e.g., high-density polyethylene tubing, HydraSleeve bailer, etc.);
- Insertion of silicon tubing into the peristaltic pump;
- Completion of monitoring well purging, prior to sample collection;
- Handling of any quality assurance/quality control samples, including field blanks and equipment blanks; and
- After handling any non-dedicated sampling equipment, contact with non-contaminated surfaces, or when judged necessary by field personnel.

(Source: Navy 2015)
[a] Although this equipment is not required for soil sampling via hand auger, it is anticipated that work will be conducted in close proximity to ongoing DPT sampling.
DPT = Direct-push technology.
PPE = Personal protective equipment.

Soil Sampling Via Hand Auger		
Job Step	**Potential Hazard**	**Critical Action**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 32, Vehicle Operation (e.g., valid driver's license, seat belt use, routine vehicle inspections, and no cell phone use while driving)
Soil sampling	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Artificial lighting provided for work after twilight
	Overhead hazards	Maintain a distance of 10 ft or more from DPT rigs. Hard hat when working within 25 ft of DPT rig or other overhead hazards
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Muscle strain/back injury	Stretch before starting to turn auger. Use a smooth motion to turn the hand auger; turn with hips more than shoulders to protect the lower back. Do not attempt to force the turn if an obstruction is encountered. If possible, use ratcheting hand augers
	Unauthorized personnel entering work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone
	Subsurface utilities (e.g., electric shock, fire, and damage to utilities)	FM will ensure that each boring location has been cleared to preclude contact with buried utilities through compliance with EH&S Procedure 33, Subsurface Asset and Hazard Avoidance
	Noise	Hearing protection in the vicinity of the flight line or aircraft maintenance areas. Hearing protection when within 25 ft of DPT rig unless equipment-specific monitoring indicates that noise levels are less than 85 decibels. Maintain a 25-ft standoff from DPT when boring
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lightning or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event

Soil Sampling Via Hand Auger		
Job Step	**Potential Hazard**	**Critical Action**
	Lifting (musculoskeletal injuries) hazards	Compliance with EH&S Procedure 50, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. Clear area of all unnecessary equipment and slip/trip hazards. Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lb, or has to be moved by maneuvering through awkward positioning
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Fire	Fire extinguisher rated 2A and 5B (serviced annually and inspected monthly) in all fuel use areas
	Chemical exposure	Breathing zone monitoring with 10.6-eV PID; stop work action level of 5 ppm sustained for over 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling
Borehole abandonment	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Artificial lighting provided for work after twilight
	Overhead hazards	Maintain a distance of 10 ft or more from DPT rigs. Hard hat when working within 25 ft of DPT rig or other overhead hazards
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Unauthorized personnel entering work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone

Soil Sampling Via Hand Auger		
Job Step	**Potential Hazard**	**Critical Action**
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Silica/particulate exposure	Visually monitor for dust and stand upwind of work zone
	Noise	Hearing protection in vicinity of flight line or aircraft maintenance areas
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Chemical exposure	Breathing zone monitoring with 10.6-eV PID; stop work action level of 5 ppm sustained for over 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling

DEET = N,N-diethyl-meta-toluamide.
DOT = U.S. Department of Transportation.
DPT = Direct-push technology.
EH&S = Environmental health and safety.
FM = Field Manager.
FOD = Foreign object debris.
HAZWOPER = Hazardous Waste Operations and Emergency Response.
MUTCD = Manual on Uniform Traffic Control Devices.
PID = Photoionization detector.
ppm = Parts per million.
SDS = Safety Data Sheet.
SHSO = Site Health and Safety Officer.

ACTIVITY HAZARD ANALYSIS		
WORK ACTIVITY: SOIL SAMPLING AND OVERSIGHT OF PEIZOMETER/WELL INSTALLATION USING HOLLOW-STEM AUGERS OR DIRECT-PUSH TECHNOLOGY		
PPE	**Selected**	**Comment**
Safety Shoes	X	See note
Hard Hat	X	Within 25 ft of drill rig, DPT, or other overhead hazards
Safety Glasses With Side Shields	X	
Fire-Resistant Clothing		
Face Shields		
Goggles		
Lifeline/Body Harness		
Hearing Protection	X	When within 25 ft of drill rig, DPT rig, or near flight line
Air-Purifying Respirator		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Floatation Device		
Gloves	X	Nitrile for potentially contaminated material. Heavy-duty work gloves for material handling. Leather for hot work
Fall Restraint/Arrest PPE		
Safety Cones/Barricades	X	To control/alert traffic and exclude unauthorized personnel
Safety Vest	X	If near active traffic areas
Knee Pads		
Caution/Danger Tape	X	As needed to exclude unauthorized personnel

NOTE: Do not wear water-resistant, waterproof, or stain-treated clothing during the field program. Field clothing made of synthetic and natural fibers (preferably cotton) is acceptable. Field clothing should be laundered avoiding the use of fabric softener. Preferably, field gear should be cotton construction and well laundered (a minimum of six times from time of purchase). New clothing may contain perfluorinated compound (PFC)-related treatments. Do not use new clothing while sampling or sample handling.

Do not wear clothing or boots containing Gore-Tex® during the sampling program as it consists of a PFC membrane.

All safety footwear will consist of steel-toed boots made with polyurethane and polyvinyl chloride.

Do not wear Tyvek® clothing onsite as it contains fluorinated compounds.

Disposable nitrile gloves must be worn at all times. Further, a new pair of nitrile gloves should be donned prior to the following activities at each sample location:

- Decontamination of reusable sampling equipment;
- Contact with sample bottles or water containers;
- Insertion of anything into the well (e.g., high-density polyethylene tubing, HydraSleeve bailer, etc.);
- Insertion of silicon tubing into the peristaltic pump;
- Completion of monitoring well purging, prior to sample collection;
- Handling of any quality assurance/quality control samples, including field blanks and equipment blanks; and
- After handling any non-dedicated sampling equipment, contact with non-contaminated surfaces, or when judged necessary by field personnel.

(Source: Navy 2015).
DPT = Direct-push technology.
PPE = Personal protective equipment.

Soil Sampling and Oversight of Piezometer/Well Installation Using Hollow-Stem Augers or Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 32, Vehicle Operation (e.g., valid driver's license, seat belt use, routine vehicle inspections, and no cell phone use while driving)
Rig set up	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Rig/fork truck equipped with functional backup alarm. Artificial lighting provided for work after twilight
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure subcontractor maintains good housekeeping in work area. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Contact with overhead structures or utilities	FM/SHSO will survey location and ensure absence of obstructions and overhead utilities prior to set up. Personnel and equipment will not be allowed to come within 10 ft of overhead power lines. Do not approach closer than twice the height of the raised mast At the time the mast is being towered down, other drill crew members should not be engaged in any other activity; the task at that time is to assist in towering down in the safest manner possible. The mast of the drill rig must be towered down before moving to the next location
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of the site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Noise	Hearing protection in vicinity of flight line or aircraft maintenance areas

Soil Sampling and Oversight of Piezometer/Well Installation Using Hollow-Stem Augers or Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Unauthorized personnel entering work zone	If structures or public access areas fall within the radius of the raised mast, establish a work schedule to minimize hazard to public, establish an exclusion zone boundary that unauthorized personnel cannot cross, and position drill rig so as to minimize inclusion of public access areas within the work zone
Coring/Boring	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Artificial lighting provided for work after twilight
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure subcontractor maintains good housekeeping in work area. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Falling equipment	No workers under suspended loads. Exclusion zone around rig. Do not approach closer than twice the height of the raised mast
	Pinch	Keep hands from between drill string components. Keep fingers out of all openings
	Unauthorized personnel entering work zone	If structures or public access areas fall within the radius of the raised mast, establish a work schedule to minimize hazard to public, establish an exclusion zone boundary that unauthorized personnel cannot cross, and position drill rig so as to minimize inclusion of public access areas within the work zone
	Subsurface utilities (e.g., electric shock, fire, and damage to utilities)	FM will ensure that each boring location has been cleared to preclude contact with buried utilities through compliance with EH&S Procedure 33, Subsurface Asset and Hazard Avoidance

Soil Sampling and Oversight of Piezometer/Well Installation Using Hollow-Stem Augers or Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
	Noise	Hearing protection in the vicinity of the flight line. Hearing protection when within 25 ft of drill rig unless equipment-specific monitoring indicates that noise levels are less than 85 decibels. Maintain a 25-ft standoff from rig when boring
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Silica/particulate exposure	Visually monitor for dust and stand upwind of work zone
	Lifting (musculoskeletal injuries) hazards	Compliance with EH&S Procedure 50, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. Clear area of all unnecessary equipment and slip/trip hazards. Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lb, or has to be moved by maneuvering through awkward positioning
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Fire	Fire extinguisher rated 2A and 5B (serviced annually and inspected monthly) in all fuel use areas. Hot work controls if welding/cutting required
	Chemical exposure	Breathing zone monitoring with 10.6-eV PID; stop work action level of 5 ppm sustained for over 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling

Soil Sampling and Oversight of Piezometer/Well Installation Using Hollow-Stem Augers or Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
Soil sampling	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Artificial lighting provided for work after twilight
	Contact with overhead structures or utilities	FM/SHSO will survey location and ensure absence of obstructions and overhead utilities prior to set up. Personnel and equipment will not be allowed to come within 10 ft of overhead power lines
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Falling equipment	No workers under suspended loads. Exclusion zone around rig
	Cuts/contusions	Use dedicated tube cutter or hooked safety blades when opening polymer sample tubes. Wear heavy cut-resistant gloves when opening polymer sample tubes. Keep fingers from between split spoon halves
	Unauthorized personnel entering work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone
	Subsurface utilities (e.g., electric shock, fire, and damage to utilities)	FM will ensure that each boring location has been cleared to preclude contact with buried utilities through compliance with EH&S Procedure 33, Subsurface Asset and Hazard Avoidance
	Noise	Hearing protection in the vicinity of the flight line. Hearing protection when within 25 ft of drill rig unless equipment-specific monitoring indicates that noise levels are less than 85 decibels. Maintain a 25-ft standoff from rig when boring
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event

Soil Sampling and Oversight of Piezometer/Well Installation Using Hollow-Stem Augers or Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
	Lifting (musculoskeletal injuries) hazards	Compliance with EH&S Procedure 50, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. Clear area of all unnecessary equipment and slip/trip hazards. Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lb, or has to be moved by maneuvering through awkward positioning
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Fire	Fire extinguisher rated 2A and 5B (serviced annually and inspected monthly) in all fuel use areas
	Chemical exposure	Breathing zone monitoring with 10.6-eV PID; stop work action level of 5 ppm sustained for over 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling
Piezometer/Well construction or abandonment	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Rig/fork truck equipped with functional backup alarm. Artificial lighting provided for work after twilight
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure subcontractor maintains good housekeeping in work area. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Silica/particulate exposure	Visually monitor for dust and stand upwind of work zone
	Noise	Hearing protection in vicinity of flight line or aircraft maintenance areas

Soil Sampling and Oversight of Piezometer/Well Installation Using Hollow-Stem Augers or Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
	Lifting (musculoskeletal injuries) hazards	Compliance with EH&S Procedure 50, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. Clear area of all unnecessary equipment and slip/trip hazards. Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lb, or has to be moved by maneuvering through awkward positioning
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Unauthorized personnel in work zone	If structures or public access areas fall within the radius of the raised mast, establish a work schedule to minimize hazard to public, establish an exclusion zone boundary that unauthorized personnel cannot cross, and position drill rig so as to minimize inclusion of public access areas within the work zone
	Electric shock	Portable electrical tools and all portable electrical equipment must be connected through ground fault circuit interrupters
	Fire	Fire extinguisher rated 2A and 5B (serviced annually and inspected monthly) in all fuel use/hot work areas. Clear 30-ft-radius area of combustible/flammable materials during hot work
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Chemical exposure	Breathing zone monitoring with 10.6-eV PID; stop work action level of 5 ppm sustained for over 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling

Soil Sampling and Oversight of Piezometer/Well Installation Using Hollow-Stem Augers or Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
Containing and managing soil cuttings, decontamination fluids, and other IDW	General hazard	Level D PPE, buddy system, HAZWOPER 40-hr training, and standard procedures
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure subcontractor maintains good housekeeping in work area. Avoid trip hazards and wet surfaces
	Struck by mobile equipment (forklift/skid steer)	During oversight of drum movement, stand clear from work zone and moving heavy equipment. No personnel under lifted loads
	Being struck by vehicles	High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Artificial lighting provided for work after twilight
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Noise	Hearing protection in vicinity of flight line or aircraft maintenance areas
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Unauthorized personnel in work zone	Exclude non-site workers from work area using barrier tape
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event

Soil Sampling and Oversight of Piezometer/Well Installation Using Hollow-Stem Augers or Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
	Chemical exposure	Breathing zone monitoring with 10.6-eV PID; stop work action level of 5 ppm sustained for over 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling
	IDW control	Label or mark IDW containers to indicate container number, contents (including the physical state), investigation location, date of collection, and client name. Ensure that storage area provides adequate protection against physical damage or disturbance

DEET = N,N-diethyl-meta-toluamide.
DOT = U.S. Department of Transportation.
EH&S = Environmental health and safety.
FM = Field Manager.
FOD = Foreign object debris.
HAZWOPER = Hazardous Waste Operations and Emergency Response.
IDW = Investigation-derived waste.
MUTCD = Manual on Uniform Traffic Control Devices.
PID = Photoionization detector.
PPE = Personal protective equipment.
ppm = Parts per million.
SDS = Safety Data Sheet.
SHSO = Site Health and Safety Officer.

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ACTIVITY HAZARD ANALYSIS		
WORK ACTIVITY: SOIL SAMPLING VIA DIRECT-PUSH TECHNOLOGY		
PPE	**Selected**	**Comment**
Safety Shoes	X	See notes
Hard Hat	X	Within 25 ft of DPT or other overhead hazards
Safety Glasses with Side Shields	X	
Fire-Resistant Clothing		
Face Shields		
Goggles		
Lifeline/Body Harness		
Hearing Protection	X	In vicinity of flight line or aircraft maintenance activities or within 25 ft of DPT, concrete saw, or drill
Air-Purifying Respirator		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Floatation Device		
Gloves	X	Nitrile gloves for all sampling activities. Heavy-duty work gloves for material handling
Safety Cones/Barricades	X	To control/alert traffic and exclude unauthorized personnel
Safety Vest	X	If near active traffic areas
Knee Pads		
Snake Boots/Chaps/Guards	X	As needed
Caution/Danger Tape	X	As needed to exclude unauthorized personnel

NOTE: Do not wear water-resistant, waterproof, or stain-treated clothing during the field program. Field clothing made of synthetic and natural fibers (preferably cotton) is acceptable. Field clothing should be laundered avoiding the use of fabric softener. Preferably, field gear should be cotton construction and well laundered (a minimum of six times from time of purchase). New clothing may contain perfluorinated compound (PFC)-related treatments. Do not use new clothing while sampling or sample handling.

Do not wear clothing or boots containing Gore-Tex® during the sampling program as it consists of a PFC membrane.

All safety footwear will consist of steel-toed boots made with polyurethane and polyvinyl chloride.

Do not wear Tyvek® clothing onsite as it contains fluorinated compounds.

Disposable nitrile gloves must be worn at all times. Further, a new pair of nitrile gloves should be donned prior to the following activities at each sample location:

- Decontamination of reusable sampling equipment;
- Contact with sample bottles or water containers;
- Insertion of anything into the well (e.g., high-density polyethylene tubing, HydraSleeve bailer, etc.);
- Insertion of silicon tubing into the peristaltic pump;
- Completion of monitoring well purging, prior to sample collection;
- Handling of any quality assurance/quality control samples, including field blanks and equipment blanks; and
- After handling any non-dedicated sampling equipment, contact with non-contaminated surfaces, or when judged necessary by field personnel.

(Source: Navy 2015)
DPT = Direct-push technology.
PPE = Personal protective equipment.

Soil Sampling Via Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 32, Vehicle Operation (e.g., valid driver's license, seat belt use, routine vehicle inspections, and no cell phone use while driving)
DPT set up	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Rig equipped with functional backup alarm. Artificial lighting provided for work after twilight
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure subcontractor maintains good housekeeping in work area. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Contact with overhead structures or utilities	FM/SHSO will survey location and ensure absence of obstructions and overhead utilities prior to set up. Personnel and equipment will not be allowed to come within 10 ft of overhead power lines. Do not approach closer than twice the height of the raised mast
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of the site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Noise	Hearing protection in vicinity of flight line and aircraft maintenance areas
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Unauthorized personnel entering work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone

Soil Sampling Via Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
Concrete coring or asphalt cutting	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Artificial lighting provided for work after twilight
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure subcontractor maintains good housekeeping in work area. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Falling equipment	No workers under suspended loads. Exclusion zone around rig. Do not approach closer than twice the height of the raised mast
	Pinch	Keep hands from between DPT components. Keep fingers out of all openings
	Unauthorized personnel entering work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone
	Subsurface utilities (e.g., electric shock, fire, and damage to utilities)	FM will ensure that each boring location has been cleared to preclude contact with buried utilities through compliance with EH&S Procedure 33, Subsurface Asset and Hazard Avoidance
	Noise	Hearing protection when within 25 ft of concrete saw or drill
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Silica/particulate exposure	Visually monitor for dust and stand upwind of work zone
	Lifting (musculoskeletal injuries) hazards	Compliance with EH&S Procedure 50, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. Clear area of all unnecessary equipment and slip/trip hazards. Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lb, or has to be moved by maneuvering through awkward positioning

Soil Sampling Via Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Chemical exposure	Breathing zone monitoring with 10.6-eV PID; stop work action level of 5 ppm sustained for over 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling
	Fire	Fire extinguisher rated 2A and 5B (serviced annually and inspected monthly) in all fuel use areas. Hot work controls if welding/cutting required
Soil sampling	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Artificial lighting provided for work after twilight
	Contact with overhead structures or utilities	FM/SHSO will survey location and ensure absence of obstructions and overhead utilities prior to set up. Personnel and equipment will not be allowed to come within 10 ft of overhead power lines
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Falling equipment	No workers under suspended loads. Exclusion zone around rig
	Cuts/contusions	Use dedicated tube cutter or hooked safety blades when opening polymer sample tubes. Wear heavy cut-resistant gloves when opening polymer sample tubes
	Unauthorized personnel entering work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone
	Subsurface utilities (e.g., electric shock, fire, and damage to utilities)	FM will ensure that each boring location has been cleared to preclude contact with buried utilities through compliance with EH&S Procedure 33, Subsurface Asset and Hazard Avoidance

Soil Sampling Via Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
	Noise	Hearing protection in vicinity of flight line or aircraft maintenance areas. Hearing protection when within 25 ft of drill rig unless equipment-specific monitoring indicates that noise levels are less than 85 decibels. Maintain a 25-ft standoff from rig when boring
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Lifting (musculoskeletal injuries) hazards	Compliance with EH&S Procedure 50, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. Clear area of all unnecessary equipment and slip/trip hazards. Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lb, or has to be moved by maneuvering through awkward positioning
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Fire	Fire extinguisher rated 2A and 5B (serviced annually and inspected monthly) in all fuel use areas
	Chemical exposure	Breathing zone monitoring with 10.6-eV PID; stop work action level of 5 ppm sustained for over 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling
Borehole abandonment	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Artificial lighting provided for work after twilight

Soil Sampling Via Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
	Contact with overhead structures or utilities	FM/SHSO will survey location and ensure absence of obstructions and overhead utilities prior to set up. Personnel and equipment will not be allowed to come within 10 ft of overhead power lines
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Unauthorized personnel entering work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Silica/particulate exposure	Visually monitor for dust and stand upwind of work zone
	Noise	Hearing protection in vicinity of flight line or aircraft maintenance areas Hearing protection when within 25 ft of DPT rig unless equipment-specific monitoring indicates that noise levels are less than 85 decibels. Maintain a 25-ft standoff from DPT when boring
	Electric shock	Portable electrical tools and all portable electrical equipment must be connected through ground fault circuit interrupters
	Fire	Fire extinguisher rated 2A and 5B (serviced annually and inspected monthly) in all fuel use/hot work areas. Clear 30-ft-radius area of combustible/flammable materials during hot work
	Lifting (musculoskeletal injuries) hazards	Compliance with EH&S Procedure 50, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. Clear area of all unnecessary equipment and slip/trip hazards. Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lb, or has to be moved by maneuvering through awkward positioning

Soil Sampling Via Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Chemical exposure	Breathing zone monitoring with 10.6-eV PID; stop work action level of 5 ppm sustained for over 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling
Containing and managing decontamination fluids, soil cuttings, and other IDW	General safety hazards	Level D PPE, buddy system, HAZWOPER 40-hr training, and standard procedures
	Slips/Trips/Falls	Visually scan area ahead for hazards before proceeding. Avoid trip hazards and wet surfaces
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Noise	Hearing protection in vicinity of flight line or aircraft maintenance areas Hearing protection when within 25 ft of DPT rig unless equipment-specific monitoring indicates that noise levels are less than 85 decibels. Maintain a 25-ft standoff from DPT when boring
	Struck by mobile equipment (forklift/skid steer)	During oversight of drum movement, stand clear from work zone and moving heavy equipment. No personnel under lifted loads
	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades. Maintain awareness of parked and moving vehicles in the surrounding area. High-visibility safety vests in traffic areas. Artificial lighting provided for work after twilight
	Unauthorized personnel in work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event

Soil Sampling Via Direct-Push Technology		
Job Step	**Potential Hazard**	**Critical Action**
	Chemical exposure	Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Wear snake chaps if one cannot see the ground due to vegetation. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	IDW control	Label or mark IDW containers to indicate container number, contents (including the physical state), investigation location, date of collection, and client name. Ensure that storage area provides adequate protection against physical damage or disturbance

DEET = N,N-diethyl-meta-toluamide.
DOT = U.S. Department of Transportation.
DPT = Direct-push technology.
EH&S = Environmental health and safety.
FM = Field Manager.
FOD = Foreign object debris.
HAZWOPER = Hazardous Waste Operations and Emergency Response.
IDW = Investigation-derived waste.
MUTCD = Manual on Uniform Traffic Control Devices.
PID = Photoionization detector.
PPE = Personal protective equipment.
ppm = Parts per million.
SDS = Safety Data Sheet.
SHSO = Site Health and Safety Officer.

ACTIVITY HAZARD ANALYSIS		
WORK ACTIVITY: SURFACE WATER AND SEDIMENT SAMPLING		
PPE	**Selected**	**Comment**
Safety Shoes	X	See notes
Hard Hat	X	If overhead hazards are present
Safety Glasses with Side Shields	X	
Fire-Resistant Clothing		
Face Shields		
Goggles		
Lifeline/Body Harness		
Hearing Protection	X	In vicinity of flight line or aircraft maintenance activities or within 25 ft of DPT/drill rig, concrete saw, or drill
Air-Purifying Respirator		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Floatation Device	X	For water >2 ft deep
Hip Waders	X	For water >2 ft deep
Gloves	X	Nitrile gloves
Safety Cones/Barricades	X	To control/alert traffic and exclude unauthorized personnel
Safety Vest	X	If near active traffic areas
Knee Pads		
Snake Boots/Chaps/Guards	X	As needed
Caution/Danger Tape	X	As needed to exclude unauthorized personnel

NOTE: Do not wear water-resistant, waterproof, or stain-treated clothing during the field program. Field clothing made of synthetic and natural fibers (preferably cotton) is acceptable. Field clothing should be laundered avoiding the use of fabric softener. Preferably, field gear should be cotton construction and well laundered (a minimum of six times from time of purchase). New clothing may contain perfluorinated compound (PFC)-related treatments. Do not use new clothing while sampling or sample handling.

Do not wear clothing or boots containing Gore-Tex® during the sampling program as it consists of a PFC membrane.

All safety footwear will consist of steel-toed boots made with polyurethane and polyvinyl chloride.

Do not wear Tyvek® clothing onsite as it contains fluorinated compounds.

Disposable nitrile gloves must be worn at all times. Further, a new pair of nitrile gloves should be donned prior to the following activities at each sample location:

- Decontamination of reusable sampling equipment;
- Contact with sample bottles or water containers;
- Insertion of anything into the well (e.g., high-density polyethylene tubing, HydraSleeve bailer, etc.);
- Insertion of silicon tubing into the peristaltic pump;
- Completion of monitoring well purging, prior to sample collection;
- Handling of any quality assurance/quality control samples, including field blanks and equipment blanks; and
- After handling any non-dedicated sampling equipment, contact with non-contaminated surfaces, or when judged necessary by field personnel.

(Source: Navy 2015)
PPE = Personal protective equipment.

Surface Water and Sediment Sampling		
Job Step	**Potential Hazard**	**Critical Action**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 32, Vehicle Operation (e.g., valid driver's license, seat belt use, routine vehicle inspections, and no cell phone use while driving)
	Noise	Hearing protection if in the vicinity of the flight line and maintenance areas
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
Sampling	General safety hazards	Level D PPE, buddy system, HAZWOPER 40-hr training, and standard procedures
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Avoid trip hazards and wet surfaces. Ensure housekeeping keeps area clear of equipment and lines
	Noise	Hearing protection if in the vicinity of the flight line and maintenance areas
	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades. Maintain awareness of parked and moving vehicles in the surrounding area. High-visibility safety vests in parking lots. Artificial lighting provided for work after twilight
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling). PFD and hip waders must be worn when sampling in water >2 ft deep, and a change of clothes must be available if sampling in cold weather
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event. Do not begin sampling if a precipitation event is predicted to occur before sampling is complete
	Lifting (musculoskeletal injuries) hazards	Compliance with EH&S Procedure 50, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. Clear area of all unnecessary equipment and slip/trip hazards. Additional help will be obtained by workers or mechanical assistance will be used onsite if equipment to be moved is unwieldy, has a weight >50 lb, or has to be moved by maneuvering through awkward positioning
	Unauthorized personnel in work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone

Surface Water and Sediment Sampling		
Job Step	**Potential Hazard**	**Critical Action**
	Chemical exposure	Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Wear snake chaps or hip waders if one cannot see the ground due to vegetation. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	Drowning	Use the buddy system. PFD and throw rope with ring buoy required when sampling surface water >2 ft deep
Containing and managing decontamination fluids and other IDW	General safety hazards	Level D PPE, buddy system, HAZWOPER 40-hr training, and standard procedures
	Slips/Trips/Falls	Visually scan area ahead for hazards before proceeding. Avoid trip hazards and wet surfaces
	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades. Maintain awareness of parked and moving vehicles in the surrounding area. High-visibility safety vests in traffic areas. Artificial lighting provided for work after twilight
	Unauthorized personnel in work zone	Establish an exclusion zone boundary with caution tape to prevent unauthorized personnel in work zone
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Chemical exposure	Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile gloves for chemical/contaminant contact. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling

Surface Water and Sediment Sampling		
Job Step	**Potential Hazard**	**Critical Action**
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by ticks/ants. Pretreat clothing with permethrin. Use insect/tick repellant (>30% DEET) to supplement. Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Wear snake chaps or hip waders if one cannot see the ground due to vegetation. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac
	IDW control	Label or mark IDW containers to indicate container number, contents (including the physical state), investigation location, date of collection, and client name. Ensure that storage area provides adequate protection against physical damage or disturbance

DEET = N,N-diethyl-meta-toluamide.
EH&S = Environmental health and safety.
FM = Field Manager.
FOD = Foreign object debris.
HAZWOPER = Hazardous Waste Operations and Emergency Response.
IDW = Investigation-derived waste.
PFD = Personal flotation device.
PPE = Personal protective equipment.
SDS = Safety Data Sheet.
SHSO = Site Health and Safety Officer.

ACTIVITY HAZARD ANALYSIS		
WORK ACTIVITY: INVESTIGATION-DERIVED WASTE SAMPLING		
PPE	**Selected**	**Comment**
Safety Shoes	X	See note
Hard Hat	X	If overhead hazards are present
Safety Glasses with Side Shields	X	
Fire-Resistant Clothing		
Face Shields		
Goggles		
Lifeline/Body Harness		
Hearing Protection	X	In vicinity of flight line or aircraft maintenance activities
Air-Purifying Respirator		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Floatation Device		
Gloves	X	Nitrile gloves for sampling. Heavy-duty work gloves for material handling
Safety Cones/Barricades	X	To control/alert traffic and exclude unauthorized personnel
Safety Vest	X	As necessary for traffic safety
Knee Pads		
Caution Tape	X	As needed to exclude unauthorized personnel

NOTE: Do not wear water-resistant, waterproof, or stain-treated clothing during the field program. Field clothing made of synthetic and natural fibers (preferably cotton) is acceptable. Field clothing should be laundered avoiding the use of fabric softener. Preferably, field gear should be cotton construction and well laundered (a minimum of six times from time of purchase). New clothing may contain perfluorinated compound (PFC)-related treatments. Do not use new clothing while sampling or sample handling.

Do not wear clothing or boots containing Gore-Tex® during the sampling program as it consists of a PFC membrane.

All safety footwear will consist of steel-toed boots made with polyurethane and polyvinyl chloride.

Do not wear Tyvek® clothing onsite as it contains fluorinated compounds.

Disposable nitrile gloves must be worn at all times. Further, a new pair of nitrile gloves should be donned prior to the following activities at each sample location:

- Decontamination of reusable sampling equipment;
- Contact with sample bottles or water containers;
- Insertion of anything into the well (e.g., high-density polyethylene tubing, HydraSleeve bailer, etc.);
- Insertion of silicon tubing into the peristaltic pump;
- Completion of monitoring well purging, prior to sample collection;
- Handling of any quality assurance/quality control samples, including field blanks and equipment blanks; and
- After handling any non-dedicated sampling equipment, contact with non-contaminated surfaces, or when judged necessary by field personnel.

(Source: Navy 2015)
PPE = Personal protective equipment.

Investigation-Derived Waste Sampling		
Job Step	**Potential Hazard**	**Critical Action**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 32, Vehicle Operation (e.g., valid driver's license, seat belt use, routine vehicle inspections, and no cell phone use while driving)
IDW sampling	General safety hazards	Level D PPE, buddy system, HAZWOPER 40-hr training, and standard procedures
	Slips/Trips/Falls	Observe area ahead for hazards before proceeding. Ensure subcontractor maintains good housekeeping in work area. Avoid trip hazards and wet surfaces
	Being struck by vehicles	Traffic control by 36-in.+ tall traffic cones, barricade tape, and/or sawhorse barricades (more substantial barriers required as traffic hazard increases). Vehicle(s) placed between workers and oncoming traffic. High-visibility safety vests in traffic areas. Flashing rotating beacon in high-traffic parking areas or brief roadwork. MUTCD-compliant traffic control plan for work in road/street, roadside parking strip, sidewalk, and/or shoulder. All required lane closure permits from local traffic control authority must be attached to individual site sheet for work in DOT right-of-way. Artificial lighting provided for work after twilight
	Struck by mobile equipment (forklift/skid steer)	During oversight of drum movement, stand clear from work zone and moving heavy equipment. No personnel under lifted loads
	FOD	Before entering the flight line, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flight line, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flight line
	Noise	Hearing protection in vicinity of flight line or aircraft maintenance areas
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (e.g., cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling)
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning fieldwork. Avoid water, high ground, open spaces, and metal objects. Suspend fieldwork when lightning is first seen or thunder is first heard until 30 min after last lighting or thunder. Do not work in areas subject to flash flooding (e.g., ditch) if rain is forecast in the immediate area or upstream of site. Monitor weather reports for hurricanes and evacuate as necessary. Do not mobilize to the site if a hurricane is projected to make landing in the vicinity of the site during the scheduled field event
	Lifting (musculoskeletal injuries)	Compliance with EH&S Procedure 50, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. Clear area of all unnecessary equipment and slip/trip hazards. Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lb, or has to be moved by maneuvering through awkward positioning

Investigation-Derived Waste Sampling		
Job Step	**Potential Hazard**	**Critical Action**
	Chemical exposure	Breathing zone monitoring with 10.2-eV PID. Stop work if breathing zone readings exceed 5 ppm for more than 1 min. Medical clearance for hazardous waste work. 40-hr HAZWOPER and current refresher for workers. 8-hr additional supervisor for FM, SHSO, and all other onsite supervisors. Wash hands before eating or drinking. Nitrile for brief contact, Teflon® or Responder for sustained contact, or similar for potentially contaminated material. Chemical containers labeled with identity and hazard. SDSs onsite for all chemicals in use. Site-specific training must address chemicals, hazards, and proper handling. Eyewash bottle must be within 10 ft if adding water samples to pre-preserved containers
	Spill	Sample over drum top or use adjacent table. Absorbent pad on drum top or table. Spill kit within 20 ft
	IDW control	Label or mark IDW containers to indicate container number, contents (including the physical state), investigation location, date of collection, and client name. Ensure that storage area provides adequate protection against physical damage or disturbance
	Biological hazard	Inspect area for hazardous plants and organism conditions. Avoid such areas if possible. Wear clothing that covers potentially affected body parts. Seal pants legs against contact with plants and to prevent access by organisms. Use insect/tick repellant (>30% DEET and permethrin) whenever possible. Wear snake chaps if poisonous snake habitat is to be entered (e.g., underbrush, high grass, rubble/loose rock, etc.). Review route to hospital if in snake habitat or allergic to insect/spider sting/bite. Do not touch face before thoroughly washing hands with detergent or ivy wash solution if working in poison ivy/oak/sumac

DEET = N,N-diethyl-meta-toluamide.
DOT = U.S. Department of Transportation.
EH&S = Environmental health and safety.
FM = Field Manager.
FOD = Foreign object debris.
HAZWOPER = Hazardous Waste Operations and Emergency Response.
IDW = Investigation-derived waste.
MUTCD = Manual on Uniform Traffic Control Devices.
PID = Photoionization detector.
PPE = Personal protective equipment.
ppm = Parts per million.
SDS = Safety Data Sheet.
SHSO = Site Health and Safety Officer.

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The Leidos incident notification contact list is provided in Table 2, and additional contacts are provided in Attachment C.

Table 2. Project Contacts

Personnel	Position/Role	Affiliation	Office Number	Mobile Number
Steve Lowery	Health and Safety Manager	Leidos	(571) 526-6659	(405) 919-4176
Connie Samson	Program Manager	Leidos	(571) 526-7723	(703) 867-6904
Matt Vest	Project Manager	Leidos	(865) 425-4026	(606) 495-5149
Selvam Arunachalam	Deputy Project Manager	Leidos	(571) 830-5139	(571) 830-5139
TBD[a]	FM/SHSO	Leidos	TBD	TBD
Various	Base Environmental Manager	Air National Guard	See Attachment C	See Attachment C
Various	NGB Project Manager	NGB	See Attachment C	See Attachment C

[a] Multiple FMs/SHSOs will be required for project execution. Concurrence with this Site Safety and Health Plan (SSHP) by each identified FM/SHSO is required prior to the start of relevant field activities. A Field Change Notice will be issued and approved prior to fieldwork execution indicating the FM/SHSO has read the Site Inspection Work Plan and SSHP.
FM = Field Manager.
NA = Not applicable.
NGB = National Guard Bureau.
SHSO = Site Health and Safety Officer.
TBD = To be determined.

The Occupational Safety and Health Administration has adopted changes to the Hazard Communication and Chemical Hygiene program and requires that the Globally Harmonized System of Classification be used after June 2015. Table 3 provides a list of SDSs to be included onsite.

Table 3. List of SDSs

Material Name	Purpose of Use	Attachment B Page Number
Gasoline	Fuel	Att. B-3
Trizma	Sample preservation	Att. B-13
Isobutylene Calibration Gas	Instrument calibration (PID)	Att. B-23
Liquinox®	Decontamination	Att. B-29

PID = Photoionization detector.
SDS = Safety Data Sheet.

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ATTACHMENT A
INCIDENT REPORTING FORM

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EH&S INCIDENT REPORT

UNCLASSIFIED/LEIDOS PROPRIETARY INFORMATION (When Completed)

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

INSTRUCTIONS: Investigation and form are to be completed by the immediate supervisor of the employee who was directly involved in the incident or close call. The investigation participants should consist of the immediate supervisor, employee involved in the incident, and appropriate EH&S official/rep (local, division, operation, or corporate). Other personnel such as additional witnesses and subject matter experts should be involved as needed. The investigation must focus on opportunities to minimize the probability of similar incidents both within the immediate organization and elsewhere in the group. Each investigation must include development of specific and verifiable improvement actions. Complete and return Parts I & II promptly (within 24 hours) to the appropriate EH&S Official. In the event of injury or illness requiring medical treatment, complete Part III and contact the Enterprise Shared Services Human Resources Benefits Service Desk to initiate a worker's compensation claim. The remainder of the form is to be completed and returned to the appropriate EH&S Official within 10 days of the incident. Attach additional pages as needed due to any space constraints.

NOTE: Immediately report any fatality or serious injury/illness during a work-related activity to Corporate EH&S (refer to https://prism.leidos.com/docs/DOC-20507). Certain vehicle accidents must also be reported for insurance purposes. Refer to Insurance & Risk Management for guidance.

PART I

GENERAL INFORMATION

INCIDENT DATE:	**INCIDENT TYPE:** ☐ **INJURY/ILLNESS** ☐ **PROPERTY DAMAGE** ☐ **VEHICLE** ☐ **FIRE** ☐ **ENVIRONMENTAL** ☐ **CLOSE CALL**
TIME INCIDENT OCCURRED:	**NAME OF WITNESS (IF APPLICABLE):**
LOCATION (PHYSICAL ADDRESS OR LEIDOS LOCATION #):	**WHERE INCIDENT OCCURRED (EXACT SITE, DEPARTMENT, OR AREA):**

EMPLOYEE INFORMATION

EMPLOYEE'S NAME:	**JOB TITLE:**
LEIDOS EMPLOYEE #:	**LEIDOS DIVISION #:**
TIME EMPLOYEE BEGAN WORK:	**SUPERVISOR'S NAME:**

PART II

INCIDENT DETAILS

WHAT WAS THE INDIVIDUAL DOING JUST BEFORE THE INCIDENT OCCURRED? (OBJECTIVELY DESCRIBE THE ACTIVITY INCLUDING THE TOOLS, EQUIPMENT, MATERIALS, AND HAZARD CONTROLS USED)

WHAT HAPPENED? (STATE OBJECTIVELY HOW THE INCIDENT OCCURRED)	
IN THE EVENT OF INJURY OR ILLNESS, IDENTIFY THE PART OF THE BODY THAT WAS AFFECTED AND HOW IT WAS AFFECTED	WHAT OBJECT OR SUBSTANCE DIRECTLY HARMED THE INDIVIDUAL OR WAS INVOLVED IN THE INCIDENT?

PART III

MEDICAL TREATMENT INFORMATION

IF TREATMENT WAS GIVEN AWAY FROM THE WORKSITE, WHERE WAS IT GIVEN? (FACILITY NAME AND ADDRESS):	
NAME OF PHYSICIAN OR OTHER HEALTH CARE PROFESSIONAL:	DATE EMPLOYEE RETURNED TO WORK:
WAS EMPLOYEE TREATED IN AN EMERGENCY ROOM? ☐ YES ☐ NO	WAS EMPLOYEE HOSPITALIZED AS AN IN-PATIENT? ☐ YES ☐ NO
NATURE OF TREATMENT (e.g., prescriptions, ointment, stitches, cast, splint, etc.):	

INJURY OR ILLNESS (indicate applicable categories below)

☐ **FIRST AID (includes diagnostic evaluation, but not treatment, by medical provider)**

☐ **MEDICAL TREATMENT (prescription medication, stitches, etc.)**

☐ **WORK RESTRICTION SPECIFIED BY PHYSICIAN**

☐ **LOST TIME (missed one or more full days of work as specified by physician)**

PART IV

INCIDENT CAUSES [Check all that apply]

Identify root cause and contributing factors

Site/Facility and Equipment

- ☐ Exposure to hazardous site conditions
- ☐ Poor housekeeping or improper storage
- ☐ Unguarded, defective, or inadequate facility or equipment
- ☐ Improper use of facility or equipment
- ☐ Inadequate or defective design, layout, or ergonomics
- ☐ Lack of facility or equipment availability
- ☐ Other (describe):

Management Issues

- ☐ Inadequate leadership and/or demonstration of expectations
- ☐ Inadequate supervision
- ☐ Inadequate discipline or accountability
- ☐ Poorly defined rules or requirements
- ☐ Inadequate inspection, monitoring, or hazard analysis
- ☐ Culture which allows or encourages unsafe behavior
- ☐ Other (describe):

Employee Issues

- ☐ Inattention, distraction, fatigue, or stress
- ☐ Influence of drugs or alcohol
- ☐ Operating equipment without authority or required training
- ☐ Failure to use personal protective equipment, guards or safety devices
- ☐ Failure to use proper tools, equipment, or materials
- ☐ Other (describe):

Work Procedures

- ☐ Procedures are inadequate, missing, or not readily available
- ☐ Procedures not followed
- ☐ Other (describe):

Training

- ☐ Inadequate training
- ☐ Inadequate skill, qualification, or experience
- ☐ Other (describe):

Other

- ☐ Uncontrollable factor(s) (describe):

This category denotes factors that are outside Leidos control

CORRECTIVE ACTIONS

Identify actions that specifically address the causes identified above and that will effectively minimize the probability of similar events in the future. Actions must address root cause as well as contributing factors.

CAUSES (FROM ABOVE)	CORRECTIVE ACTION	PERSON ASSIGNED	DUE DATE	COMPLETION DATE

PART V	
PREPARER'S NAME: (PRINT)	**SUPERVISOR/MANAGER'S NAME: (PRINT)**
TITLE:	**TITLE:**
PREPARER'S SIGNATURE:	**SUPERVISOR/MANAGER'S SIGNATURE:**
DATE:	**DATE:**
DATE REVIEWED BY EH&S:	**EH&S SIGNATURE:**

ATTACHMENT B
SAFETY DATA SHEETS

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Gasoline

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AMERADA HESS CORPORATION

MATERIAL SAFETY DATA SHEET

Gasoline, All Grades **MSDS No. 9950**

EMERGENCY OVERVIEW
DANGER!
EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD

NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-04)

Amerada Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800)424-9300**
COMPANY CONTACT (business hours): Corporate Safety (732)750-6000
MSDS Internet Website www.hess.com/about/environ.html

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS * (rev. Jan-04)

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME). Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION (rev. Dec-97)

EYES
Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN
Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES (rev. Dec-97)

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES (rev. Dec-97)

FLAMMABLE PROPERTIES:

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 “Low Expansion Foam - 1994 Edition.”

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES (rev. Dec-97)

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product

vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE (rev. Dec-97)

HANDLING PRECAUTIONS

******USE ONLY AS A MOTOR FUEL******
******DO NOT SIPHON BY MOUTH******

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Jan-04)

EXPOSURE LIMITS

Component (CAS No.)	Exposure Limits			
	Source	TWA (ppm)	STEL (ppm)	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3
Benzene (71-43-2)	OSHA	1	5	Carcinogen
	ACGIH	0.5	2.5	A1, skin
	USCG	1	5	
n-Butane (106-97-8)	ACGIH	800	--	2003 NOIC: 1000 ppm (TWA) Aliphatic Hydrocarbon Gases Alkane (C1-C4)
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--	
	ACGIH	1000	--	A4
Ethyl benzene (100-41-4)	OSHA	100	--	
	ACGIH	100	125	A3

Component (CAS No.)	Exposure Limits			
	Source	TWA (ppm)	STEL (ppm)	Note
n-Hexane (110-54-3)	OSHA	500	--	
	ACGIH	50	--	skin
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50		A3
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established
Toluene (108-88-3)	OSHA	200		Ceiling: 300 ppm; Peak: 500 ppm (10 min.)
	ACGIH	50	--	A4 (skin)
1,2,4- Trimethylbenzene (95-63-6)	ACGIH	25	--	
Xylene, mixed isomers (1330-20-7)	OSHA	100	--	
	ACGIH	100	150	A4

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem ®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES (rev. Jan-04)

APPEARANCE

A translucent, straw-colored or light yellow liquid

ODOR

A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	Odor Detection	Odor Recognition
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H_2O = 1):	0.70 – 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %

SOLUBILITY (H_2O): Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

10. STABILITY and REACTIVITY (rev. Dec-94)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES (rev. Dec-97)

ACUTE TOXICITY

Acute Dermal LD50 (rabbits): > 5 ml/kg
Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating
Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION (rev. Jan-04)

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS (rev. Dec-97)

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION (rev. Jan-04)

DOT PROPER SHIPPING NAME:	Gasoline
DOT HAZARD CLASS and PACKING GROUP:	3, PG II
DOT IDENTIFICATION NUMBER:	UN 1203
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

PLACARD:

15. REGULATORY INFORMATION (rev. Jan-04)

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION - Parts per million (ppm) by weight
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)

Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION (rev. Jan-04)

NFPA® HAZARD RATING	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
HMIS® HAZARD RATING	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
	* CHRONIC		

SUPERSEDES MSDS DATED: 12/30/97

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than

N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute (212)642-4900
API	American Petroleum Institute (202)682-8000
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation [General Info: (800)467-4922]
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617)770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Workplace Hazardous Materials Information System (Canada)

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

Trizma (preservative)

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1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Trizma® Pre-set crystals

CAS Number : 77-86-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Quality Environmental Containers, Inc.
607 Industrial Park Rd • PO Box 1160
Beaver, WV 25813

Telephone : +1 800-255-3950

1.4 Emergency telephone number

Emergency Phone # : Chemtrec: (800) 424-9300

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Precautionary statement(s)

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P321	Specific treatment (see supplemental first aid instructions on this label).
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Synonyms : Tris crystals

Hazardous components

Component		Classification	Concentration
Tris (hydroxymethyl) aminomethane			
CAS-No.	77-86-1		30 - 60 %
EC-No.	201-064-4		
Registration number	01-2119957659-16-XXXX		

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, nitrogen oxides (NOx), Hydrogen chloride gas

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	7.0 - 9.1
e)	Melting point/freezing point	no data available
f)	Initial boiling point and boiling range	no data available
g)	Flash point	no data available
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	no data available
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information

no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Bases, Oxidizing agents, Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
no data available

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available
no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Tris (hydroxymethyl) aminomethane	77-86-1	
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	1185-53-1	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Tris (hydroxymethyl) aminomethane	77-86-1	
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	1185-53-1	

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H315 Causes skin irritation.

H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Quality Environmental Containers shall not be held liable for any damage resulting from handling or from contact with the above product.

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Isobutylene Calibration Gas

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GASCO

MATERIAL SAFETY DATA SHEET - CALIBRATION CHECK GAS

PRODUCT NAME: ISOBUTYLENE (1 PPM – 0.9%) IN AIR

MSDS NO: 248 **Version:3** **Date: March, 2012**

1. Chemical Product and Company Identification

Gasco Affiliates, LLC
320 Scarlett Blvd.
Oldsmar, FL 34677

TELEPHONE NUMBER: (800) 910-0051 **24-HOUR EMERGENCY NUMBER: 1-800-424-9300**
FAX NUMBER: (866) 755-8920
E-MAIL: info@gascogas.com

PRODUCT NAME: ISOBUTYLENE (1 PPM – 0.9%) IN AIR
CHEMICAL NAME: Isobutylene in air
COMMON NAMES/ SYNONYMS: None
TDG (Canada) CLASSIFICATION: 2.2
WHIMIS CLASSIFICATION: A

2. COMPOSITION/ INFORMATION ON INGREDIENTS

INGREDIENT	%VOLUME	PEL-OSHA	TLV-ACGIH	LD_{50} or LC_{50} Route/Species
Isobutylene FORMULA: C_4H_8	0.0001-0.9	N/A	N/A	N/A
Air FORMULA: Mixture	99.0 to 99.9999	N/A	N/A	N/A

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Release of this product may produce oxygen-deficient atmospheres (especially in confined spaces or other poorly ventilated environments); individuals in such atmospheres may be asphyxiated. Isobutylene may cause drowsiness and other central nervous system effects in high concentrations; however, due to the low concentration of this gas mixture, this is unlikely to occur.

ROUTE OF ENTRY:

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
No	No	No	Yes	No

HEALTH EFFECTS:

Exposure Limits	Irritant	Sensitization	Reproductive Hazard	Mutagen
Yes	No	No	No	No

Carcinogenicity: --NTP: No IARC: No OSHA: No

EYE EFFECTS:
N/A.

SKIN EFFECTS:
N/A.

PRODUCT NAME: ISOBUTYLENE (1 PPM – 0.9%) IN AIR

INGESTION EFFECTS:
Ingestion unlikely. Gas at room temperature.

INHALATION EFFECTS:
Due to the small size of this cylinder, no unusual health effects from over-exposure are anticipated under normal routine use.

NFPA HAZARD CODES		HMIS HAZARD CODES		RATING SYSTEM
Health:	1	Health:	1	0= No Hazard
Flammability:	0	Flammability:	0	1= Slight Hazard
Reactivity:	0	Reactivity:	0	2= Moderate Hazard
				3= Serious Hazard
				4= Severe Hazard

4. FIRST AID MEASURES

EYES:
N/A

SKIN:
N/A

INGESTION:
Not required

INHALATION:
PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASED OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED THE SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. If breathing has stopped administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.

5. FIRE-FIGHTING MEASURES

These containers hold gas under pressure, with no liquid phase. If involved in a major fire, they should be sprayed with water to avoid pressure increases, otherwise pressures will rise and ultimately they may distort or burst to release the contents. The gases will not add significantly to the fire, but containers or fragments may be projected considerable distances - thereby hampering fire fighting efforts.

6. ACCIDENTAL RELEASE MEASURES

In terms of weight, these containers hold very little contents, such that any accidental release by puncturing etc. will be of no practical concern.

7. HANDLING AND STORAGE

Suck back of water into the container must be prevented. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Use only in well-ventilated areas. Do not heat cylinder by any means to increase rate of product from the cylinder. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Use adequate ventilation for extended use of gas.

PRODUCT NAME: ISOBUTYLENE (1 PPM – 0.9%) IN AIR

9. PHYSICAL AND CHEMICAL PROPERTIES

PARAMETER:	VALUE:
Physical state	: Gas
Evaporation point	: N/A
pH	: N/A
Odor and appearance	: Colorless, odorless gas

10. STABILITY AND REACTIVITY

Stable under normal conditions. Expected shelf life 48 months.

11. TOXICOLOGICAL INFORMATION

No toxicological damage caused by this product.

12. ECOLOGICAL INFORMATION

No ecological damage caused by this product.

13. DISPOSAL INFORMATION

Do not discharge into any place where its accumulation could be dangerous. Used containers are acceptable for disposal in the normal waste stream as long as the cylinder is empty and valve removed or cylinder wall is punctured; but GASCO encourages the consumer to return cylinders.

14. TRANSPORT INFORMATION

	United States DOT	Canada TDG
PROPER SHIPPING NAME:	Compressed Gas N.O.S. (Isobutylene in Air)	Compressed Gas N.O.S. (Isobutylene in Air)
HAZARD CLASS:	2.2	2.2
IDENTIFICATION NUMBER:	UN1956	UN1956
SHIPPING LABEL:	NONFLAMMABLE GAS	NONFLAMMABLE GAS

15. REGULATORY INFORMATION

Isobutylene is listed under the accident prevention provisions of section 112(r) of the Clean Air Act (CAA) with a threshold quantity (TQ) of 10,000 pounds.

16. OTHER INFORMATION

This MSDS has been prepared in accordance with the Chemicals (Hazard Information and Packaging for Supply (Amendment) Regulation 1996. The information is based on the best knowledge of GASCO, and its advisors and is given in good faith, but we cannot guarantee its accuracy, reliability or completeness and therefore disclaim any liability for loss or damage arising out of use of this data. Since conditions of use are outside the control of the Company and its advisors we disclaim any liability for loss or damage when the product is used for other purposes than it is intended.

MSDS/S010/248/ March, 2012

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Liquinox®

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LIQUINOX MSDS

Section 1 : MANUFACTURER INFORMATION

Supplier: Same as manufacturer.

Manufacturer: Alconox, Inc.
30 Glenn St.
Suite 309
White Plains, NY 10603.

Manufacturer emergency phone number: 800-255-3924.
813-248-0585 (outside of the United States).

Manufacturer: Alconox, Inc.
30 Glenn St.
Suite 309
White Plains, NY 10603.

Supplier MSDS date: 2005/02/24

D.O.T. Classification: Not regulated.

Section 2 : HAZARDOUS INGREDIENTS

C.A.S.	CONCENTRATION %	Ingredient Name	T.L.V.	LD/50	LC/50
25155-30-0	10-30	SODIUM DODECYLBENZENESULFONATE	NOT AVAILABLE	438 MG/KG RAT ORAL 1330 MG/KG MOUSE ORAL	NOT AVAILABLE

Section 3 : PHYSICAL / CHEMICAL CHARACTERISTICS

Physical state: Liquid.

Appearance & odor: Odourless.
Pale yellow.

Odor threshold (ppm): Not available.

Vapour pressure (mmHg): @ 20°C (68°F).
17

Vapour density (air=1): >1

Volatiles (%)

By volume: Not available.

Evaporation rate (butyl acetate = 1): < 1.

Boiling point (°C):	100 (212F)
Freezing point (°C):	Not available.
pH:	8.5
Specific gravity @ 20 °C:	(water = 1). 1.083
Solubility in water (%):	Complete.
Coefficient of water\oil dist.:	Not available.
VOC:	None

Section 4 : FIRE AND EXPLOSION HAZARD DATA

Flammability:	Not flammable.
Conditions of flammability:	Surrounding fire.
Extinguishing media:	Carbon dioxide, dry chemical, foam. Water Water fog.
Special procedures:	Self-contained breathing apparatus required. Firefighters should wear the usual protective gear. Use water spray to cool fire exposed containers.
Auto-ignition temperature:	Not available.
Flash point (°C), method:	None
Lower flammability limit (% vol):	Not applicable.
Upper flammability limit (% vol):	Not applicable.

Not available.

Sensitivity to mechanical impact:	Not available.
Hazardous combustion products:	Oxides of carbon (COx). Hydrocarbons.
Rate of burning:	Not available.
Explosive power:	Containers may rupture if exposed to heat or fire.

Section 5 : REACTIVITY DATA

Chemical stability:	Product is stable under normal handling and storage conditions.
Conditions of instability:	Extreme temperatures.
Hazardous polymerization:	Will not occur.
Incompatible substances:	Strong acids. Strong oxidizing agents.
Hazardous decomposition products:	See hazardous combustion products.

Section 6 : HEALTH HAZARD DATA

Route of entry: Skin contact, eye contact, inhalation and ingestion.

Effects of Acute Exposure

Eye contact: May cause irritation.

Skin contact: Prolonged and repeated contact may cause irritation.

Inhalation: May cause headache and nausea.

Ingestion: May cause vomiting and diarrhea.
May cause gastric distress.

Effects of chronic exposure: See effects of acute exposure.

LD50 of product, species & route: > 5000 mg/kg rat oral.

LC50 of product, species & route: Not available.

Exposure limit of material: Not available.

Sensitization to product: Not available.

Carcinogenic effects: Not listed as a carcinogen.

Reproductive effects: Not available.

Teratogenicity: Not available.

Mutagenicity: Not available.

Synergistic materials: Not available.

Medical conditions aggravated by exposure: Not available.

First Aid

Skin contact: Remove contaminated clothing.
Wash thoroughly with soap and water.
Seek medical attention if irritation persists.

Eye contact: Check for and remove contact lenses.
Flush eyes with clear, running water for 15 minutes while holding eyelids open: if irritation persists, consult a physician.

Inhalation: Remove victim to fresh air.
If irritation persists, seek medical attention.

Ingestion: Do not induce vomiting, seek medical attention.
Dilute with two glasses of water.
Never give anything by mouth to an unconscious person.

Section 7 : PRECAUTIONS FOR SAFE HANDLING AND USE

Leak/Spill: Contain the spill.
Prevent entry into drains, sewers, and other waterways.
Wear appropriate protective equipment.
Small amounts may be flushed to sewer with water.
Soak up with an absorbent material.
Place in appropriate container for disposal.
Notify the appropriate authorities as required.

Waste disposal: In accordance with local and federal regulations.

Handling procedures and equipment: Protect against physical damage.
Avoid breathing vapors/mists.
Wear personal protective equipment appropriate to task.

Wash thoroughly after handling.
Keep out of reach of children.
Avoid contact with skin, eyes and clothing.
Avoid extreme temperatures.
Launder contaminated clothing prior to reuse.

Storage requirements: Store away from incompatible materials.
Keep containers closed when not in use.

Section 8 : CONTROL MEASURES

Precautionary Measures

Gloves/Type:

Wear appropriate gloves.

Respiratory/Type: None required under normal use.

Eye/Type:

Safety glasses recommended.

Footwear/Type: Safety shoes per local regulations.

Clothing/Type: As required to prevent skin contact.

Other/Type: Eye wash facility should be in close proximity.
Emergency shower should be in close proximity.

Ventilation requirements: Local exhaust at points of emission.

ATTACHMENT C
PROJECT CONTACT LIST

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Project Contact List for Fiscal Year 2017 Phase III Regional SIs for PFOS/PFOA	
PFOS/PFOA Phase III Installation Contacts	
ANG Project Manager	**ANG Environmental Manager**
Boise IAP	
Mark Dickerson (240) 612-8445	Sgt. Lonnie Kemp (208) 422-6178
Cheyenne Municipal Airport	
Mark Dickerson (240) 612-8445	Capt. Colter Rieke (307) 772-6862
Great Falls IAP	
Mark Dickerson (240) 612-8445	2d. Lt. Jared Grundhauser (406) 791-0298
Hector Field IAP	
Mark Dickerson (240) 612-8445	Major Jason Olheiser (701) 451-2850
Lincoln Municipal Airport	
Keith Freihofer (240) 612-8762	Capt. Kyle Linden (402) 309-1060
Des Moines IAP	
Stan Moore (703) 730-7215	Rolf Osteraas (515) 261-8760
Sioux Gateway Airport	
Stan Moore (703) 730-7215	Lt. Col. Neil Stockfleth (712) 233-0690
Klamath Falls IAP	
Fran Saunders (240) 612 9511	Capt. Joseph Young (541) 885-6326
Portland IAP	
Fran Saunders (240) 612 9511	Roger Rein (503) 335-4462
Reno Tahoe IAP	
Fran Saunders (240) 612 9511	Yvonne Downs (775) 788-4558
Ellington Field (Houston)	
Greg Wills (240) 612-8336	Mark Garcia (281) 929-2013
Lambert St. Louis IAP	
Greg Wills (240) 612-8336	Lt. Col. Rachel Jackson (314) 527-8369
Rosecrans Memorial Airport	
Greg Wills (240) 612-8336	Frank Dasta (816) 236-3559
Tulsa IAP	
Greg Wills (240) 612-8336	Angelique Adams (918) 833-7754
Will Rogers IAP	
Greg Wills (240) 612-8336	Lt. Col. George T. Current (405) 686 5118

ANG = Air National Guard.
IAP = International Airport.
PFOA = Perfluorooctanoic acid.
PFOS = Perfluorooctane sulfonate.
SI = Site inspection.

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APPENDIX C

MEMORANDUM – TESTING FOR PERFLUOROCHEMICALS (PFOS/PFOA) IN DRINKING WATER (NAVY 2015)

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DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY
7700 ARLINGTON BOULEVARD
FALLS CHURCH, VA 22042

IN REPLY REFER TO
6280
Ser M3B7/15UM30462
DEC 2 4 2015

MEMORANDUM FOR COMMANDER, NAVY MEDICINE EAST
COMMANDER, NAVY MEDICINE WEST

Subj: TESTING FOR PERFLUOROCHEMICALS (PFCs) IN DRINKING WATER

Ref: (a) BUMEDINST 6240.10B, Water Quality Standards

Encl: (1) OPNAV ltr 5090 N45 Ser/15U132432 of 14 Sep 2015, Navy Drinking Water Sampling Policy for Perfluorochemicals Perfluorooctane Sulfonate and Perfluorooctanoic Acid
(2) Marine Corps Memo of 24 Dec 2014, Sampling and Testing for Perfluorinated Compounds (PFCs) in Drinking Water
(3) Additional Resources and Communication Tools

1. The Navy and Marine Corps have begun testing for PFCs in drinking water systems at certain installations per enclosures (1) and (2). The specific PFCs for which testing is being performed are perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).

2. Background. PFOS and PFOA are man-made chemicals that are of increasing concern to the United States (U.S.) Environmental Protection Agency (EPA) and state regulators. They have been used in fire extinguishing foam, waterproof fabrics, non-stick cookware, stain resistant carpets, and other products. These substances are very stable and persistent in the environment; they can migrate to drinking water sources because they are not adsorbed well in soil. These substances are considered "emerging contaminants" for which there are no Safe Drinking Water Act (SDWA) regulatory standards (e.g., Maximum Contaminant Levels (MCLs)).

a. The EPA developed Provisional Health Advisory (PHA) values for PFOA and PFOA. They reflect health-based concentrations above which action should be taken to reduce exposure to these unregulated contaminants in drinking water. The EPA PHA for PFOS is 0.2 micrograms per liter (µg/L), and the PHA for PFOA is 0.4 µg/L.

b. In 2012, the EPA added a requirement to sample for PFOS/PFOA by the end of 2015 under the SDWA Third Unregulated Contaminant Monitoring Rule. This was intended to identify the extent of PFOS/PFOA in U.S. drinking water systems and help the EPA determine whether a drinking water standard should be established. Based on sampling conducted throughout the Department of Defense to date, we do not expect a significant number of samples to exceed the EPA PHAs for PFOS or PFOA.

c. Per enclosure (1), if a PFOS or PFOA sample exceeds the EPA PHA at any Navy drinking water system, consultation with the Navy and Marine Corps Public Health Center (NMCPHC) should be initiated to determine allowable uses for the water in accordance with reference (a).

3. Action. In preparation for addressing potentially high PFOS/PFOA sampling results, Navy Medicine Regions and medical treatment facilities (MTFs) must take the following steps:

a. Ahead of drinking water sampling, Regions must ensure each MTF identifies a point of contact (POC) who is knowledgeable of this program, is experienced in risk communication, and can answer questions regarding health risks and the significance of testing results. The POC should generally be a specialist in public health, occupational medicine, or environmental health. The POC should coordinate with the regional or installation Drinking Water Manager prior to initiation of sampling and testing. Navy Medicine Regions should also identify a regional POC if they have not already done so.

b. If PFOS or PFOA sampling results are above the EPA PHA, then MTFs should anticipate medical inquiries and use appropriate risk communication practices. The medical POCs should also prepare to visit the affected facilities to address any concerns. These visits should be done in coordination with installation staff, who will then deliver notification letters with sampling results to affected individuals.

(1) The medical POCs should be prepared to discuss the potential health risks due to PFOS/PFOA exposure, reasons why PFOS/PFOA blood testing is not recommended, as well as when and how to obtain a medical evaluation.

(2) The medical POCs can find additional resources and communication tools in enclosure (3).

4. Blood testing for PFOS/PFOA is not medically necessary. While blood tests can measure the level of PFCs in a person's body at the time of the test, the blood tests cannot:

(1) tell a person where or how they were exposed to PFCs, since there are many other sources of PFC exposure in a person's living and working environment;

(2) tell a person what, if any, health problems might occur or have occurred because of PFC exposure;

(3) be used by a health care provider to guide individual treatment decisions or additional medical tests. There are no medically approved "treatments" or methods to remove PFCs from a person's body other than to decrease total exposure in order to reduce body burden over time.

Healthcare providers should perform any routine diagnostic or screening tests as medically indicated based on their patient's history, physical examination, and assessment, but not based on PFOS/PFOA levels.

5. The NMCPHC will provide further information and support. They may be reached by phone at (757) 953-0700 or DSN (312) 377- 0700.

6. My point of contact is LCDR Jaime Vega, MC, USN, Occupational Medicine, who may be reached via phone at (703) 681-5467 or by email at Jaime.Vega2.mil@mail.mil.

E. C. WAGNER
Director, Healthcare Operations

DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, DC 20350-2000

5090
N45 Ser/15U132432
14 SEP 15

From: Director, Energy and Environmental Readiness (OPNAV N45)
To: Commander, Navy Installations Command (N4)

Subj: NAVY DRINKING WATER SAMPLING POLICY FOR PERFLUOROCHEMICALS PERFLUOROOCTANE SULFONATE AND PERFLUOROOCATONOIC ACID

Ref: (a) CNICINST 5090.3
(b) EPA Office of Water Provisional Health Advisories for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) dated January 8, 2009
(c) BUMEDINST 6240.1B

Encl: (1) 21 October 2014 ASN (EI&E) Memo
(2) EPA Approved Laboratories for UCMR 3
(3) Field Sampling Protocols to Avoid Cross Contamination

1. Effective the date of this letter, this policy supports enclosure (1) in providing requirements for sampling and testing for the emerging contaminants Perfluorooctane Sulfonate (PFOS) and Perfluoroocatanoic Acid (PFOA) in certain Navy public water systems (PWS) in the United States and Navy overseas drinking water (ODW) systems as defined in reference (a).

2. Backgroud. PFOS and PFOA are perfluorochemicals (PFCs), man-made chemicals that are of increasing concern to the U.S. Environmental Protection Agency (EPA) and state regulators. These substances are very stable and persistent in the environment and because they are not adsorbed well in soil, they can migrate to drinking water sources. At present, these substances are considered "emerging contaminants" for which there are no Safe Drinking Water Act (SDWA) regulatory standards. While PFCs have been used in a variety of products and substances, the most common historical Navy use of the substances has been as a fire extinguishing surfactant in Aqueous Film-Forming Foam (AFFF).

3. In 2012, EPA added a requirement to sample for PFOS/PFOA under the SDWA Third Unregulated Contaminant Monitoring Rule (UCMR 3). As a result, all large and 800 small public water systems (PWS) in the United States must sample and test for these chemicals between 2013 and 2015. The purpose of UCMR 3 sampling and testing is to determine the extent that PFOS/PFOA occurs in U.S. drinking water systems and whether drinking water standards should be established.

4. On 8 January 2009, EPA's Office of Water released a Provisional Health Advisory (PHA) establishing health-based screening levels for PFOS and PFOA. Reference (b) sets the PHA for PFOS at 0.2 micrograms per liter (μg/L); the PHA for PFOA was set at 0.4 μg/L. The 2009 PHA is under review, and if EPA revises the levels, the revised figures will be used for all Navy PFOS/PFOA actions unless the U.S. state in which the installation is located has established more stringent standards.

5. Policy. This letter establishes policy for the sampling and testing of PFOS and PFOA in drinking water at certain Navy installations worldwide. When federal, state, or DoD standards are promulgated, the more protective requirement will be used for Navy PFOS and PFOA actions.

6. All Navy PWSs in the United States that produce drinking water from on installation sources where PFCs are known or suspected to have been released within approximately 1-mile up-gradient to the drinking water source must sample and test for PFOS/PFOA in finished drinking water. Navy PWSs that have completed sampling and testing for PFOS/PFOA under the Federal UCMR 3 or any state UCMR that has requirements at least as stringent as Federal requirements are not required to repeat sampling and testing for the purpose of this policy. All ODW Systems must also sample and test for PFOS/PFOA in finished drinking water, unless the installation can document that there is no potential PFOS/PFOA exposure pathway.

7. Drinking water managers should work with Environmental Restoration managers to determine if PFCs are known or suspected to have been released within approximately 1-mile up-gradient to the drinking water source.

8. Navy Public Water Systems in the United States subject to this policy must complete sampling and testing by December 31, 2015. Navy ODW systems must complete sampling by March 31, 2016. One sample per drinking water system is required and EPA Method 537 Rev 1.1 must be used for analyzing all samples. Samples must be processed in a laboratory accredited for EPA Method 537 Rev 1.1. Enclosure (2) provides a list of laboratories approved for EPA Method 537. Navy ODW systems must also use a U.S. laboratory approved for EPA Method 537. Given the low detection limits associated with PFC analysis and the many potential sources of trace levels of PFCs, personnel are advised to follow the protocols in Enclosure (3).

9. If a PFOS or PFOA sample exceeds the PHA at any Navy drinking water system, alternative drinking water must be supplied until these levels can be reduced below the PHAs. Exceedances and corrective actions shall be reported to the chain of command and consultation with the Navy Marine Corps Public Health Center should be initiated to determine allowable uses for the water in accordance with reference (c).

10. If a PFOS or PFOA sample is below the PHA, but is detected above the Minimum Reporting Level (0.04 ug/l and 0.02 ug/l respectively), the Navy drinking water system should coordinate possible follow-up actions with the chain of command. This may include additional sampling and monitoring to ensure the PFOS and PFOA levels in the drinking water system remain below the PHAs.

11. Funding for sampling and testing shall be programmed as an emergent project in Navy's Environmental Portal, Environmental Program Requirements Web (EPR Web) Guidebook number 05999 using Environmental Readiness Level 4 to ensure projects receive the highest priority for funding. Funding for implementation of corrective actions is the responsibility of the installation Public Works Officer.

12. All results of UCMR 3 PFOS/PFOA sampling, and Navy Public Water System sampling under this policy shall be submitted to OPNAV N45 by 15 February 2016. ODW System sampling shall be submitted to OPNAV N45 no later than 15 May 2016.

13. My point of contact is Ms. Lindsay R. Nehm, N452E, at (703) 695-5179, DSN 225-5179, or e-mail Lindsay.nehm@navy.mil.

D. G. MORTON
Rear Admiral, U.S. Navy
Director, Energy and Environmental
Readiness Division

Copy to:
DASN(E)
OPNAV N4
OPNAV N46
NAVFAC ENV
BUMED
NAVSEA 04X

DEPARTMENT OF THE NAVY
THE ASSISTANT SECRETARY OF THE NAVY
(ENERGY, INSTALLATIONS AND ENVIRONMENT)
1000 NAVY PENTAGON
WASHINGTON DC 20350-1000

October 21, 2014

MEMORANDUM FOR DEPUTY CHIEF OF NAVAL OPERATIONS (FLEET READINESS AND LOGISTICS) (N4)
DEPUTY COMMANDANT OF THE MARINE CORPS (INSTALLATIONS AND LOGISTICS)

SUBJECT: Perfluorinated Compounds (PFCs) – An Emerging Environmental Issue

References: (a) OPNAVINST 5090.1D
(b) MCO P5090.2A
(c) DoDI 4715.18
(d) SECNAV Info Memo, 29 Jul 2014

The Department of the Navy (DON) is committed to ensuring all men, women, and children who live or work on DON installations and facilities are protected from environmental contaminants and receive safe drinking water. Navy and Marine Corps maintain comprehensive environmental instructions (references (a) and (b)) detailing procedures to meet and exceed requirements found in statute, regulation, and policy. Reference (c) established Department of Defense (DoD) policy relative to emerging contaminants, such as PFCs.

PFCs are a suite of chemicals of emerging public health concern to the U.S. Environmental Protection Agency (EPA) and state regulators, primarily in drinking water systems. One of the major DoD uses of PFCs is as a fire extinguishing agent in aqueous film forming foam (AFFF). EPA added new PFC sampling requirements under the Safe Drinking Water Act (SDWA) Unregulated Contaminant Monitoring Rule 3 (UCMR 3), requiring all large and 800 small public water systems to test for these chemical between 2013-2015. This testing is being conducted to determine the extent of PFCs in drinking water systems nationwide and whether drinking water standards should be established.

Per reference (d), my staff coordinated a meeting with the DoD Component subject matter experts to evaluate these emerging contaminants and identify paths forward regarding the future use, cleanup, and protection of DON drinking water systems. To date, only two PFCs (perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA)) have sufficient toxicological information to make cleanup and drinking water safety decisions. DoD is taking the lead and will be conducting a study of AFFF formulations to determine whether safer alternatives are available that meet our firefighting requirements. After coordinating with your Navy and Marine Corps staff, I am directing the following actions be taken regarding PFOS and PFOA cleanup sites and drinking water systems:

- Defense Environmental Restoration Program (DERP) – identify all known and suspected sites where PFOS and/or PFOA may have been released on active and Base Realignment and Closure (BRAC) installations. As appropriate, address these contaminant releases including migration off-site, under DERP and in accordance with reference (c).

- DON drinking water systems in the United States – Ensure all applicable UCMR 3 testing and reporting requirements are met by December 2015. If exceedances of Provisional Health Advisory (PHA) values are identified, supply alternative drinking water until these levels can be reduced below the PHAs. For installations not required to test under the UCMR 3, and where the installation produces drinking water from on-installation sources, by December 2015, sample finished drinking water from all DON systems for PFOS and PFOA where there is an identified or suspected PFC release within approximately 1-mile upgradient to the drinking water source. Address any PHA value exceedances per above.

- DON overseas drinking water systems – DERP does not apply overseas, so PFC release site information may not be available. Therefore, all DON overseas drinking water systems shall be sampled for PFOS and PFOA by December 2015 and any PHA value exceedances addressed per above.

- Drinking water systems with detections above the Method Reporting Limit (MRL), but below the PHA value shall determine appropriate follow-up actions, in coordination with the chain of command, which may include additional sampling to ensure levels in drinking water, remain below the PHA value.

- Report all drinking water PHA value and MRL exceedances and corrective actions to my office.

My point of contact is Mr. Richard Mach at (703) 614-5463 or richard.mach@navy.mil.

Donald R. Schregardus

EPA Approved Laboratories for UCMR 3

These laboratories met the Unregulated Contaminant Monitoring Rule 3 (UCMR 3) Laboratory Approval Program application and Proficiency Testing (PT) criteria for the methods indicated. These laboratories can only analyze samples using those methods marked with "X" next to their names. This approved laboratory list is subject to change. Laboratories that withdraw or fail to maintain the method and program quality control requirements will be permanently removed from the list.

Laboratory Name	Assessment Monitoring List 1						Screening Survey List 2
	EPA 200.8	EPA 218.7	EPA 300.1	EPA 522	EPA 524.3	EPA 537	EPA 539
Arkansas DoH Public Health Lab 201 South Monroe St. Little Rock, AR 72205 (501)661-2220	X	X	X		X		
City of Phoenix Laboratory Services 2474 South 22nd Avenue Phoenix, AZ 85009 (602)534-2960	X	X	X		X		
City of Tempe Water Quality Laboratory PO Box 5002 Tempe, AZ 85280 (480)350-8255 www.tempe.gov/waterquality	X						
Orange Co. Water District Advanced Water Quality Assurance Lab 18700 Ward Street Fountain Valley, CA 92708 (714)378-3347 www.ocwd.com	X	X	X	X	X	X	X
BSK Associates 1414 Stanislaus Street Fresno, CA 93706 (559)497-2888 www.bskinc.com	X	X	X	X	X	X	X
Weck Laboratories, Inc. 14859 E. Clark Avenue Industry, CA 91745 (626)336-2139 www.wecklabs.com	X	X	X	X	X	X	X
TestAmerica - Irvine 17461 Derian Ave. Suite 100 Irvine, CA 92614 (949)261-1022 www.testamericainc.com		X	X	X	X		

These laboratories met the Unregulated Contaminant Monitoring Rule 3 (UCMR 3) Laboratory Approval Program application and Proficiency Testing (PT) criteria for the methods indicated. These laboratories can only analyze samples using those methods marked with "X" next to their names. This approved laboratory list is subject to change. Laboratories that withdraw or fail to maintain the method and program quality control requirements will be permanently removed from the list.

Laboratory Name	Assessment Monitoring						Screening Survey
	EPA 200.8	EPA 218.7	EPA 300.1	EPA 522	EPA 524.3	EPA 537	EPA 539
Eurofins Eaton Analytical Inc, formerly known as MWH Labs 750 Royal Oaks Drive Monrovia, CA 91016 (626)386-1100 www.eatonanalytical.com	X	X	X	X	X	X	X
Los Angeles DWP, Water Quality Laboratory 555 E Walnut St Pasadena, CA 91101 (213)367-8546	X	X	X	X	X		
McCampbell Analytical, Inc. 1534 Willow Pass Road Pittsburg, CA 94565 (925)252-9262 www.mccampbell.com	X	X	X	X	X	X	X
Basic Laboratory, Inc. 2218 Railroad Ave. Redding, CA 96001 (530)243-7234 www.basiclab.com	X	X	X	X	X		
Edward S. Babcock and Sons, Inc. 6100 Quail Valley Court Riverside, CA 92507 (951)653-3351 www.babcocklabs.com	X	X	X	X	X	X	X
Test America - West Sacramento 880 Riverside Parkway West Sacramento, CA 95605 (916)373-5600 www.testamericainc.com						X	
Regional Water Authority 90 Sargent Dr. New Haven, CT 06511 (203)562-4020 www.rwater.com			X		X	X	X

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Laboratory Name	Assessment Monitoring List 1						Screening Survey List 2
	EPA 200.8	EPA 218.7	EPA 300.1	EPA 522	EPA 524.3	EPA 537	EPA 539
Orange County Utilities Laboratory 9124 Curry Ford Road Orlando, FL 32825 (407)254-9550	X	X	X	X	X	X	X
Pace Analytical Services, Inc. - Florida 8 East Tower Circle Ormond Beach, FL 32174 (386)672-5668 www.pacelabs.com	X	X	X	X	X	X	X
State Hygienic Laboratory - Ankeny 2220 S. Ankeny Blvd. Ankeny, IA 500239093 (515)725-1600 www.shl.uiowa.edu	X	X	X				
State Hygienic Laboratory - Coralville 2490 Crosspark Road Coralville, IA 522414792 (319)335-4500 www.shl.uiowa.edu				X	X	X	X
Anatek Labs, Inc. 1282 Alturas Drive Moscow, ID 83843 (208)883-2839 www.anateklabs.com	X		X	X	X	X	X
American Water Central Laboratory 1115 S. Illinois Street Belleville, IL 62220 (618)235-3600 www.amwater.com	X	X	X	X	X	X	X
PDC Laboratories PO Box 9071 Peoria, IL 616129071					X		

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	EPA 200.8	EPA 218.7	EPA 300.1	EPA 522	EPA 524.3	EPA 537	EPA 539
Heritage Environmental Services, LLC 7901 W. Morris St. Indianapolis, IN 46231 (317)243-8304 www.heritage-enviro.com						X	
UL LLC 110 South Hill Street South Bend, IN 46617 (574)233-4777 www.ul.com/water/waterlab	X	X	X	X	X	X	X
McCoy & McCoy Laboratories, Inc. P.O. Box 907 Madisonville, KY 42431 (270)821-7375 www.mccoylabs.com	X	X	X	X	X		
Barnstable County Dept. of Health and Environment Lab 3195 Main Street Barnstable, MA 02630 (508)375-6606			X		X		
Enviro-Chem Laboratories, Inc. 47 Loveton Circle, STE K Sparks, MD 21152 (410)472-1112 www.enviro-chem.net	X	X					
ALS Environmental Division - Holland 3352 128th Ave Holland, MI 49424 (616)399-6070 www.alsglobal.com	X		X	X	X		
National Testing Laboratories, Ltd. 556 South Mansfield St. Ypsilanti, MI 48197	X		X				

These laboratories met the Unregulated Contaminant Monitoring Rule 3 (UCMR 3) Laboratory Approval Program application and Proficiency Testing (PT) criteria for the methods indicated. These laboratories can only analyze samples using those methods marked with "X" next to their names. This approved laboratory list is subject to change. Laboratories that withdraw or fail to maintain the method and program quality control requirements will be permanently removed from the list.

Laboratory Name	Assessment Monitoring List 1						Screening Survey List 2
	EPA 200.8	EPA 218.7	EPA 300.1	EPA 522	EPA 524.3	EPA 537	EPA 539
MO DNR Environmental Laboratory 2710 West Main St Jefferson City, MO 65109 (573)526-6971	X		X				
Microbac Laboratories, Inc. - Wilson Division 3809 Airport Drive NW Wilson, NC 27896 (252)237-4175 www.microbac.com			X				
EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (800)220-3675 www.emsl.com			X				
Suffolk County Water Authority Laboratory 260 Motor Parkway Hauppauge, NY 11788 (631)563-0259 scwa.com	X	X	X	X	X	X	X
H2M Labs, Inc. 575 Broad Hollow Rd Melville, NY 11747 (631)694-3040 www.h2mlabs.com			X	X	X		
Columbia Analytical Services - NY 1565 Jefferson Rd, Building 300, Ste 360 Rochester, NY 14623 (585)288-5380 www.caslab.com		X		X			
Westchester County Dept. of Lab and Research 10 Dana Road Valhalla, NY 10595 (914)231-1620 labs.westchestergov.com				X	X		

These laboratories met the Unregulated Contaminant Monitoring Rule 3 (UCMR 3) Laboratory Approval Program application and Proficiency Testing (PT) criteria for the methods indicated. These laboratories can only analyze samples using those methods marked with "X" next to their names. This approved laboratory list is subject to change. Laboratories that withdraw or fail to maintain the method and program quality control requirements will be permanently removed from the list.

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	EPA 200.8	EPA 218.7	EPA 300.1	EPA 522	EPA 524.3	EPA 537	EPA 539
Summit Environmental Technologies, Inc. 3310 Win Street Cuyahoga Falls, OH 44223 (330)253-8211 www.Settek.com	X	X	X	X	X		
Alloway Testing 1776 Marion-Waldo Road Marion, OH 43302 (740)389-5991 www.alloway.com	X	X	X	X	X		
Accurate Environmental Labs 505 S. Lowry Stillwater, OK 74074 (405)372-5300 www.accuratelabs.com	X	X	X	X	X	X	X
Aqua Pennsylvania, Inc. 762 W. Lancaster Ave Bryn Mawr, PA 190103489 (610)645-1145	X	X	X		X		
Microbac Laboratories, Inc. Central Pennsylvania Division 4359 Linglestown Road Harrisburg, PA 17112 (717)651-9700 www.microbac.com	X			X	X		
ALS - Middletown 34 Dogwood Lane Middletown, PA 17057 (717)944-5541 www.alsglobal.com	X	X	X	X	X		
Suburban Water Testing Labs 1037F MacArthur Rd Reading, PA 19605 h2otest.com	X	X	X	X	X		

These laboratories met the Unregulated Contaminant Monitoring Rule 3 (UCMR 3) Laboratory Approval Program application and Proficiency Testing (PT) criteria for the methods indicated. These laboratories can only analyze samples using those methods marked with "X" next to their names. This approved laboratory list is subject to change. Laboratories that withdraw or fail to maintain the method and program quality control requirements will be permanently removed from the list.

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	EPA 200.8	EPA 218.7	EPA 300.1	EPA 522	EPA 524.3	EPA 537	EPA 539
M.J. Reider Associates, Inc. 107 Angelica Street Reading, PA 19611 (610)374-5129 mjreider.com		X	X				
Kirby Memorial Health Center 71 North Franklin St Wilkes-Barre, PA 18701 (570)823-5450 www.kirbyhealthcenter.org	X						
Environmental Quality Laboratories, Inc (EQLab) P.O. Box 11458 Santurce, PR 009101458 (787)288-6420 www.eqlab.com			X	X	X		
Rogers and Callcott Engineers, Inc. PO Box 5655 Greenville, SC 29606 (864)232-1556 www.rogersandcallcott.com					X		
LCRA - Environmental Laboratory Services 3505 Montopolis Dr, MS: EL-101 Austin, TX 78744 (512)356-6022 https://els.lcra.org	X		X	X	X	X	X
City of Houston Drinking Water Operations Laboratory 2300 Federal Rd Houston, TX 77015 (832)395-6039 http://www.publicworks.houstontx.gov/utilities/drinking		X	X	X			
Unified State Laboratories: UT DoH 4431 South 2700 West Taylorsville, UT 84129 (801)965-2400	X	X	X	X	X	X	

These laboratories met the Unregulated Contaminant Monitoring Rule 3 (UCMR 3) Laboratory Approval Program application and Proficiency Testing (PT) criteria for the methods indicated. These laboratories can only analyze samples using those methods marked with "X" next to their names. This approved laboratory list is subject to change. Laboratories that withdraw or fail to maintain the method and program quality control requirements will be permanently removed from the list.

Laboratory Name	Assessment Monitoring List 1						Screening Survey List 2
	EPA 200.8	EPA 218.7	EPA 300.1	EPA 522	EPA 524.3	EPA 537	EPA 539
Edge Analytical, Inc. 1620 S. Walnut St. Burlington, WA 98233 (360)757-1400 www.edgeanalytical.com	X	X	X	X	X		
Columbia Analytical Services, Inc. 1317 South 13th Avenue Kelso, WA 98626 (360)577-7222 www.caslab.com						X	X
Water Management Laboratories, Inc. 1515 80th Street East Tacoma, WA 98404 (253)531-3121	X		X	X			
Northern Lake Service, Inc. 400 N. Lake Ave. Crandon, WI 54520 (800)278-1254 www.nlslab.com	X	X	X	X	X	X	X

End of List

The Laboratory Approval Program is voluntary, and is specific to laboratories analyzing samples for UCMR 3. The laboratories' approval status indicates they have demonstrated specific capabilities using the method(s).

Public water systems (PWSs) are responsible for their laboratories, and must ensure they are following the methods and meeting the quality control (QC) criteria specified in UCMR 3. Laboratories must post sample analytical results and required QC data electronically via the Safe Drinking Water Accession and Review System (SDWARS) within 120 days of the sample collection date. EPA may revoke a laboratory's approval status if the laboratory does not adhere to quality assurance/quality control (QA/QC) procedures and criteria, or fails to post data to SDWARS. If EPA revokes approval, the laboratory's name will no longer appear on this list. Once approval has been revoked, the laboratory cannot be re-approved during the UCMR 3 monitoring period.

Questions: UCMR Message Center (800) 949-1581

FIELD SAMPLING PROTOCOLS TO AVOID CROSS-CONTAMINATION DURING WATER SAMPLING FOR PERFLUORINATED COMPOUNDS (PFCs)

1.0 PURPOSE

While EPA method 537 provides basic guidance on sampling for PFC's in drinking water, due to the potential for cross contamination this Standard Operating Procedure (SOP) addendum describes additional precautionary procedures/considerations when collecting groundwater or drinking water samples. Sampling specific SOPs should also be reviewed prior to conducting field sampling activities at PFC sites.

2.0 SCOPE

This procedure applies to all qualified personnel and subcontractors who collect or otherwise handle water samples for analysis of PFCs. This SOP should be reviewed by all on-site personnel prior to implementation of field activities.

3.0 GENERAL

Given the low detection limits associated with PFC analysis and the many potential sources of trace levels of PFCs, field personnel are advised to act on the side of caution by strictly following these protocols, frequently replacing nitrile gloves, and rinsing field equipment to help mitigate the potential for background contamination detections of PFCs. Specific items related to field sampling are discussed below.

4.0 PROCEDURES/CONSIDERATIONS

The following are procedures/considerations to be made during field activities at potential PFC release sites.

Field Equipment

- **Do not use Teflon®-containing materials** (e.g., Teflon® tubing, bailers, tape, plumbing paste, or other Teflon® materials) since Teflon® contains fluorinated compounds.
- High-density polyethylene (HDPE), low-density polyethylene (LDPE), and silicon materials are acceptable for sampling. Samples should not be stored in containers made of LDPE materials.
- To avoid plastic coating or glue materials, **do not use waterproof field books**. Field reports should be documented on loose paper on masonite or aluminum clipboards (i.e. plastic clipboards, binders, or spiral hard cover notebooks are not acceptable). Sharpies®/markers should be avoided.
- **Post-It Notes are not allowed** on project sites.

- **Do not use markers.** Pens should be used when documenting field activities in the field log and on field forms as well as labeling sample containers and preparing the Chain of Custody.
- **Do not use chemical (blue) ice packs** during the sampling program. This includes the use of ice packs for the storage of food and/or samples.

Field Clothing and Personal Protective Equipment

- **Do not wear water resistant, waterproof, or stain-treated clothing** during the field program. Field clothing made of synthetic and natural fibers (preferably cotton) are acceptable. Field clothing should be laundered avoiding the use of fabric softener. Preferably, field gear should be cotton construction and well laundered (a minimum of 6 times from time of purchase). New clothing may contain PFC related treatments. **Do not use new clothing** while sampling or sample handling.
- **Do not wear clothing or boots containing Gore-Tex™** during the sampling program as it consists of a PFC membrane.
- All safety footwear will consist of steel-toed boots made with polyurethane and polyvinyl chloride (PVC).
- **Do not wear Tyvek® clothing** on-site since it contains fluorinated compounds.
- Disposable nitrile gloves must be worn at all times. Further, a new pair of nitrile gloves should be donned prior to the following activities at each sample location:
  - Decontamination of re-usable sampling equipment;
  - Prior to contact with sample bottles or water containers;
  - Insertion of anything into the well (e.g. HDPE tubing, HydraSleeve bailer, etc.);
  - Insertion of silicon tubing into the peristaltic pump;
  - Completion of monitor well purging, prior to sample collection;
  - Handling of any quality assurance/quality control samples including field blanks and equipment blanks; and,
  - After the handling of any non-dedicated sampling equipment, contact with non-decontaminated surfaces, or when judged necessary by field personnel.

Sample Containers

- Samples should be collected in polypropylene or HDPE bottles fitted with an unlined (no Teflon®), polypropylene HDPE screw cap. This is an especially important point as many laboratories utilize Teflon-lined bottles.
- Container labels will be completed using pen (**NO MARKERS**) after the caps have been placed back on each bottle.

- Glass containers should also be avoided due to potential loss of analyte through adsorption.

Wet Weather

- Field sampling occurring during wet weather (e.g., rainfall and snowfall) should be conducted while wearing appropriate clothing that will not pose a risk for cross-contamination. Teams should avoid synthetic gear that has been treated with water-repellant finishes containing PFCs. Use rain gear made from polyurethane and wax-coated materials.

Equipment Decontamination

For GW sampling, it is highly recommended that disposable equipment be utilized. However, if equipment re-use is performed, field sampling equipment, including oil/water interface meters and water level indicators, that are utilized at each sample location will require cleaning between uses. Alconox® and Liquinox® soap is acceptable for use since the Material Safety Data Sheets do not list fluoro-surfactants as an ingredient. However, **Decon 90 must not be used** during decontamination activities. Water used for the decontamination of sampling equipment will be laboratory certified "PFC-free" water.

Personnel Hygiene

- Field personnel should not use cosmetics, moisturizers, hand cream, or other related products as part of their personal cleaning/showering routine on the morning of a sampling event, as these products may contain surfactants and represent a potential source of PFCs.
- Many manufactured sunblock and insect repellants contain PFCs and should not be brought or used on-site. Sunblock and insect repellants that are used on-site should consist of 100% natural ingredients.

Food Considerations

- No food or drink shall be brought on-site, with the exception of bottled water and hydration drinks (i.e., Gatorade® and Powerade®).

Blanks

- Utilization of blanks is a good quality check to monitor and control the effects of contamination. Trip blanks and field blanks are recommended.

REFERENCES

- Transport Canada, 2013. *Perfluorochemical (PFC) Field Sampling Protocol.* May.

- Delta Consultants, 2010. *Report of Investigation Activities at Select Firefighting Foam Training Areas and Foam Discharge Sites in Minnesota*. February.
- MPCA, 2008. *Closed Landfill Program Sampling Protocol for Monitoring Wells.* October.
- *Oregon State University, 2015. COLLECTION AND HANDLING OF SAMPLES FOR FLUOROCHEMICAL ANALYSIS. July.*
- *EPA, 2009. EPA Document #: EPA/600/R-08/092, METHOD 537. DETERMINATION OF SELECTED PERFLUORINATED ALKYL ACIDS IN DRINKING WATER BY SOLID PHASE EXTRACTION AND LIQUID CHROMATOGRAPHY/TANDEM MASS SPECTROMETRY (LC/MS/MS). Version 1.1. September*

MCATS:

To: CG MCIEAST/MCB Camp Lejeune
CG MCIWEST/MCB Camp Pendleton
CG MCIPAC/MCB Camp Butler
CDR MCINCR/MCB Quantico

Cc: CG TECOM
CG MCRD Parris Island
CG MCRD San Diego
CG MCAGCC 29 Palms

Subj: Sampling and Testing for Perfluorinated Compounds (PFCs) in Drinking Water

Purpose: To comply with the requirements of the Deputy Assistant Secretary of the Navy (Environment) (DASN(E)) memorandum dated 21 October 2014, "Perfluorinated Compounds (PFCs) – An Emerging Environmental Issue." This policy supports efforts to ensure that all men, women, and children who live or work on Department of the Navy (DON) installations and facilities are protected from emerging environmental contaminants such as PFCs and receive safe drinking water.

Tabs: (A) DASN(E) memo of 21 Oct 14, Perfluorinated Compounds (PFCs) – An Emerging Environmental Issue
(B) Marine Corps Restoration Sites with Known or Suspected PFC Contamination
(C) DON Drinking Water Systems in the United States - Drinking Water Wells Near Environmental Restoration (ER) Sites
(D) EM Portal Instructions

Comments:

1. Installations subject to the Third Unregulated Contaminant Monitoring Rule (UCMR 3) must ensure all applicable testing and reporting requirements are met by December 2015. Per the memo in Tab (A), if exceedances of Provisional Health Advisory (PHA) values are identified, installations must inform HQMC/MCICOM and supply alternative drinking water until these levels can be reduced below the PHAs.

2. Per the memo in Tab (A), installations not already subject to the UCMR 3 requirements and that produce drinking water from on-installation sources must identify drinking water sources (wells or surface water) that are within approximately 1-mile downgradient of an ER site that is suspected to contain PFCs or an active firefighting training site. A list of installations with ER sites that may contain PFCs is provided in Tab (B).

Installations that identify drinking water sources in the vicinity of these sites (ER and Firefighting training) are then required to sample the drinking water system for PFOS/PFOA by 31 December 2015. If exceedances of PHA values are identified, installations must inform HQMC/MCICOM and supply alternative drinking water until these levels can be reduced below the PHAs.

3. MCICOM requests that installations fill in the required information in the spreadsheets contained in Tab (C) for their respective installation. Request that the addressees provide the information via EM Portal following the instructions provided in Tab (D).

4. If you have any questions, please contact Mr. Chris Gamache (christopher.gamache@usmc.mil) or Ms. Misha Turner (misha.turner@usmc.mil).

Due date: 12/31/2015

DEPARTMENT OF THE NAVY
THE ASSISTANT SECRETARY OF THE NAVY
(ENERGY, INSTALLATIONS AND ENVIRONMENT)
1000 NAVY PENTAGON
WASHINGTON DC 20350-1000

October 21, 2014

MEMORANDUM FOR DEPUTY CHIEF OF NAVAL OPERATIONS (FLEET READINESS AND LOGISTICS) (N4)
DEPUTY COMMANDANT OF THE MARINE CORPS (INSTALLATIONS AND LOGISTICS)

SUBJECT: Perfluorinated Compounds (PFCs) – An Emerging Environmental Issue

References: (a) OPNAVINST 5090.1D
(b) MCO P5090.2A
(c) DoDI 4715.18
(d) SECNAV Info Memo, 29 Jul 2014

The Department of the Navy (DON) is committed to ensuring all men, women, and children who live or work on DON installations and facilities are protected from environmental contaminants and receive safe drinking water. Navy and Marine Corps maintain comprehensive environmental instructions (references (a) and (b)) detailing procedures to meet and exceed requirements found in statute, regulation, and policy. Reference (c) established Department of Defense (DoD) policy relative to emerging contaminants, such as PFCs.

PFCs are a suite of chemicals of emerging public health concern to the U.S. Environmental Protection Agency (EPA) and state regulators, primarily in drinking water systems. One of the major DoD uses of PFCs is as a fire extinguishing agent in aqueous film forming foam (AFFF). EPA added new PFC sampling requirements under the Safe Drinking Water Act (SDWA) Unregulated Contaminant Monitoring Rule 3 (UCMR 3), requiring all large and 800 small public water systems to test for these chemical between 2013-2015. This testing is being conducted to determine the extent of PFCs in drinking water systems nationwide and whether drinking water standards should be established.

Per reference (d), my staff coordinated a meeting with the DoD Component subject matter experts to evaluate these emerging contaminants and identify paths forward regarding the future use, cleanup, and protection of DON drinking water systems. To date, only two PFCs (perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA)) have sufficient toxicological information to make cleanup and drinking water safety decisions. DoD is taking the lead and will be conducting a study of AFFF formulations to determine whether safer alternatives are available that meet our firefighting requirements. After coordinating with your Navy and Marine Corps staff, I am directing the following actions be taken regarding PFOS and PFOA cleanup sites and drinking water systems:

- Defense Environmental Restoration Program (DERP) – identify all known and suspected sites where PFOS and/or PFOA may have been released on active and Base Realignment and Closure (BRAC) installations. As appropriate, address these contaminant releases including migration off-site, under DERP and in accordance with reference (c).

- DON drinking water systems in the United States – Ensure all applicable UCMR 3 testing and reporting requirements are met by December 2015. If exceedances of Provisional Health Advisory (PHA) values are identified, supply alternative drinking water until these levels can be reduced below the PHAs. For installations not required to test under the UCMR 3, and where the installation produces drinking water from on-installation sources, by December 2015, sample finished drinking water from all DON systems for PFOS and PFOA where there is an identified or suspected PFC release within approximately 1-mile upgradient to the drinking water source. Address any PHA value exceedances per above.

- DON overseas drinking water systems – DERP does not apply overseas, so PFC release site information may not be available. Therefore, all DON overseas drinking water systems shall be sampled for PFOS and PFOA by December 2015 and any PHA value exceedances addressed per above.

- Drinking water systems with detections above the Method Reporting Limit (MRL), but below the PHA value shall determine appropriate follow-up actions, in coordination with the chain of command, which may include additional sampling to ensure levels in drinking water, remain below the PHA value.

- Report all drinking water PHA value and MRL exceedances and corrective actions to my office.

My point of contact is Mr. Richard Mach at (703) 614-5463 or richard.mach@navy.mil.

Donald R. Schregardus

FEC	ER,N or BRAC?	Base	Site Name	Site Description	CERCLA Investigation Phase	AFFF Used At Site?	PFC Sampling Performed?	DW exposure potential	DW Sampling Performed?	Remedial Technology	Other Information	State	EPA Region	Site ID Program
Southeast	ER,N	ALBANY_MCLB		Burn Pit								GA	4	NORM
Southeast	ER,N	ALBANY_MCLB		Fire Training				Low				GA	4	NORM
Southwest	ER,N	BARSTOW CA MCLB	Site 1	Burn Area	RI/FS							CA	9	NORM
Southeast	ER,N	BEAUFORT_MCAS	Site 12 - Eastern Fire Training Pit	Fire Training			No	Low		MNA	Site undergoing MNA for petroleum hydrocarbons	SC	4	NORM
Southeast	ER,N	BEAUFORT_MCAS	Site 13 - Western Fire Training Area	Fire Training			No	Low			Site closed - NFA	SC	4	NORM
Southeast	ER,N	BEAUFORT_MCAS	Site 38 - Current FFTA	Fire Training			No	Low			Site is still operation. Will be assessed at later date.	SC	4	NORM
Southwest	ER,N	CAMP PENDLETON CA MC	Site 1112	Burn Area	RA-C							CA	9	NORM
Southwest	ER,N	CAMP PENDLETON CA MC	Site 12$	Fire/Crash Trai	RFI/CMS							CA	9	NORM
Southwest	ER,N	CAMP PENDLETON CA MC	Site 5	Fire/Crash Trai	RA-C							CA	9	NORM
MIDLANT	ER,N	CAMP_LEJEUNE_MCB		Burn Pit								NC	4	NIRIS
MIDLANT	ER,N	CAMP_LEJEUNE_MCB		Fire Training								NC	4	NIRIS
MIDLANT	ER,N	CHERRY_POINT_MCAS		Burn Pit								NC	4	NIRIS
MIDLANT	ER,N	CHERRY_POINT_MCAS		Fire Training								NC	4	NIRIS
MIDLANT	ER,N	CHERRY_POINT_MCAS	Hangar 3	Hangar								NC	4	NIRIS
MIDLANT	ER,N	CHERRY_POINT_MCAS	Hangar 130	Hangar								NC	4	NIRIS
Southwest	BRAC	EL TORO MCAS	SITE 16 - CRASH CREW PIT 2	Burn Pit	6							CA	9	NORM
Southwest	BRAC	EL TORO MCAS	SITE 9 - CRASH CREW PIT 1	Burn Pit	Site Closed							CA	9	NORM
Hawaii	ER,N	KANEOHE_BAY_MCB	Site 4	Fire Training								HI	9	NIRIS
Southwest	ER,N	MIRAMAR CA MCAS	Hangar 6	Hangar								CA	9	NIRIS
Southwest	ER,N	MIRAMAR CA MCAS	Site 4	Fire/Crash Trai	RA-C							CA	9	NORM
MIDLANT	ER,N	PARRIS_ISLAND_MCRD		Fire Training								SC	4	NIRIS
Southeast	ER,N	PARRIS ISLAND SC MCRD	Site 4 - Dredge Spoils Area FF Training Pit	Fire Training			No	Low			Combined with Site 13, RI Work Plan in preparation	SC	4	NORM
Southeast	ER,N	PARRIS ISLAND SC MCRD	Site 7 - Page Field Training Pit	Fire Training							Site will be combined with AVGAS pipeline, MNA likely remedy	SC	4	NORM
Washington	ER,N	QUANTICO_MCB	New Burn Pit (L-12)	Burn Pit	RC		No	No	No		No action; 00-SSP (SSP Report No. 3; presented to QPMT on 6/5/02); 98-DTAWS (QPMT agreed to move site to SSP even though DTAWS report was not generated).	VA	3	NIRIS
Washington	ER,N	QUANTICO_MCB	Fire Training (L-08), Site 19.	Fire Training	RC		No	No	No		Deferred during negotiations of FFA; deferred to UST Program however AFFF may have been used at the site.	VA	3	NIRIS
Washington	ER,N	QUANTICO_MCB	Previous Burn Pits (APS-02A). Site 22	Burn Pit	RC		No	No	No		No action DD.	VA	3	NIRIS
Washington	ER,N	QUANTICO_MCB	Interim Burn Pit and Fill Area (APS-02C); Site 23.	Burn Pit	RC		No	No	No		No action DD.	VA	3	NIRIS
Washington	ER,N	QUANTICO_MCB	Open Burn/Open Detonation Area (L13)	Burn Pit	RC		No	No	No		Deferred during negotiations of FFA; C-Demo; ; deferred to RCRA Program (MI-FF-RCRA-008).	VA	3	NIRIS
Washington	ER,N	QUANTICO_MCB	Building 2427 Burn Area (L17)	Burn Pit	RC		No	No	No		NFA ROD signed (by Base 10/5/00 and EPA 10/13/00); 95-RI/FS; evaluated with Site 1, Pesticide Burial Area (see Consensus Agreement No. 6); confirmation sampling conducted and further monitoring not required (3/6/02 QPMT meeting minutes and Confirmation Sampling Decision Document No. 1).	VA	3	NIRIS

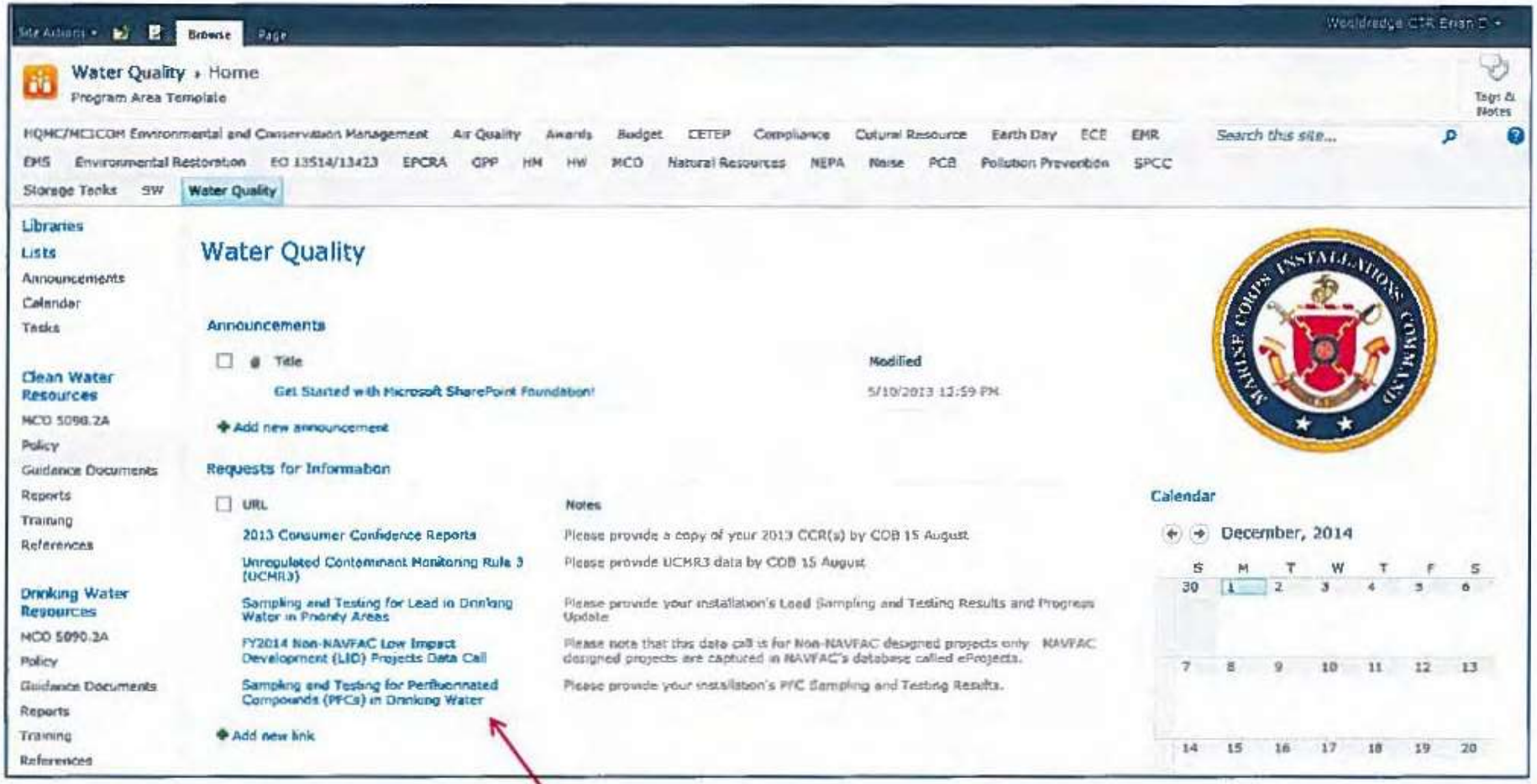
Washington	ERIN	QUANTICO_MCB	Quantico Sanitary Landfill Burn Area (L19)	Burn Pit	RC		No	No	No		Deferred during negotiations of FFA; deferred to the sanitary landfill portion of the Solid Waste Facility Permit Number VA411.	VA	3	NRUS
Southwest	BRAC	TUSTIN_MCAS	SITE 1 - CRASH CREW FIRE TRNG PITS	Burn Pit	?						Property Transferred	CA	9	NORM
Southwest	BRAC	TUSTIN_MCAS	SITE 39 - BURN PITS	Burn Pit	Site Closed							CA	9	NORM
Southwest	BRAC	TUSTIN_MCAS	SITE 9 - HANGAR NO. 1 LINE SHACKS	Hangar	Site Closed							CA	9	NORM
Southwest	ERIN	TWENTYNINE PALMS CA M	Site 15	Fire/Crash Trair	PA/SI							CA	9	NORM
Southwest	ERIN	TWENTYNINE PALMS CA M	Site 2	Fire/Crash Trair	RA-C							CA	9	NORM
Southwest	ERIN	TWENTYNINE PALMS CA M	Site 22	Fire/Crash Trair	RI/FS							CA	9	NORM
Southwest	ERIN	TWENTYNINE PALMS CA M	Site 7	Fire/Crash Trair	RI/FS							CA	9	NORM
Southwest	ERIN	TWENTYNINE PALMS CA M	Site 8	Fire/Crash Trair	RA-C							CA	9	NORM
Southwest	ERIN	YUMA AZ MCAS	Site 2	Burn Area	PA/SI							AZ	9	NORM
Southwest	ERIN	YUMA AZ MCAS	Site 25	Fire/Crash Trair	PA/SI							AZ	9	NORM
Southwest	ERIN	YUMA AZ MCAS	Site 4	Burn Area	PA/SI							AZ	9	NORM
Southwest	ERIN	YUMA AZ MCAS	Site 7	Fire/Crash Trair	RA-C							AZ	9	NORM

DON Drinking Water Systems Overseas - PFOS/PFOA Testing of all Drinking Water Systems

Installation	# Site Name or Fire Fighting Training Location	Drinking Water System Name	PWSID#	# of DW Wells in Vicinity of Site	Water Source	Sample Location Name	Sample Date (mm/dd/yyyy)	Contaminant (PFOS or PFOA)	HA (ppt)	Sample Concentration (ppt)

Submitting Sampling & Testing for Perfluorinated Compounds (PFCs) Results through EM Portal

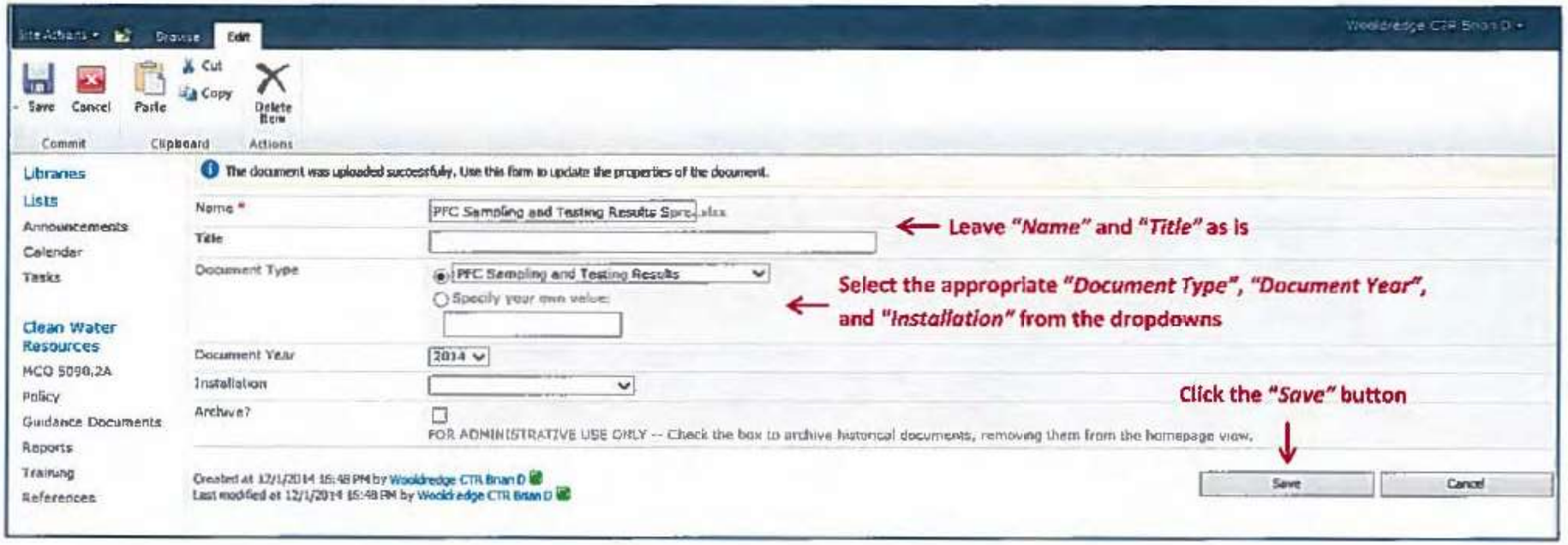
1. Navigate to the EM Portal Water Quality Site at https://em.usmc.mil/sites/hq/cleanwater/SitePages/Home.aspx.



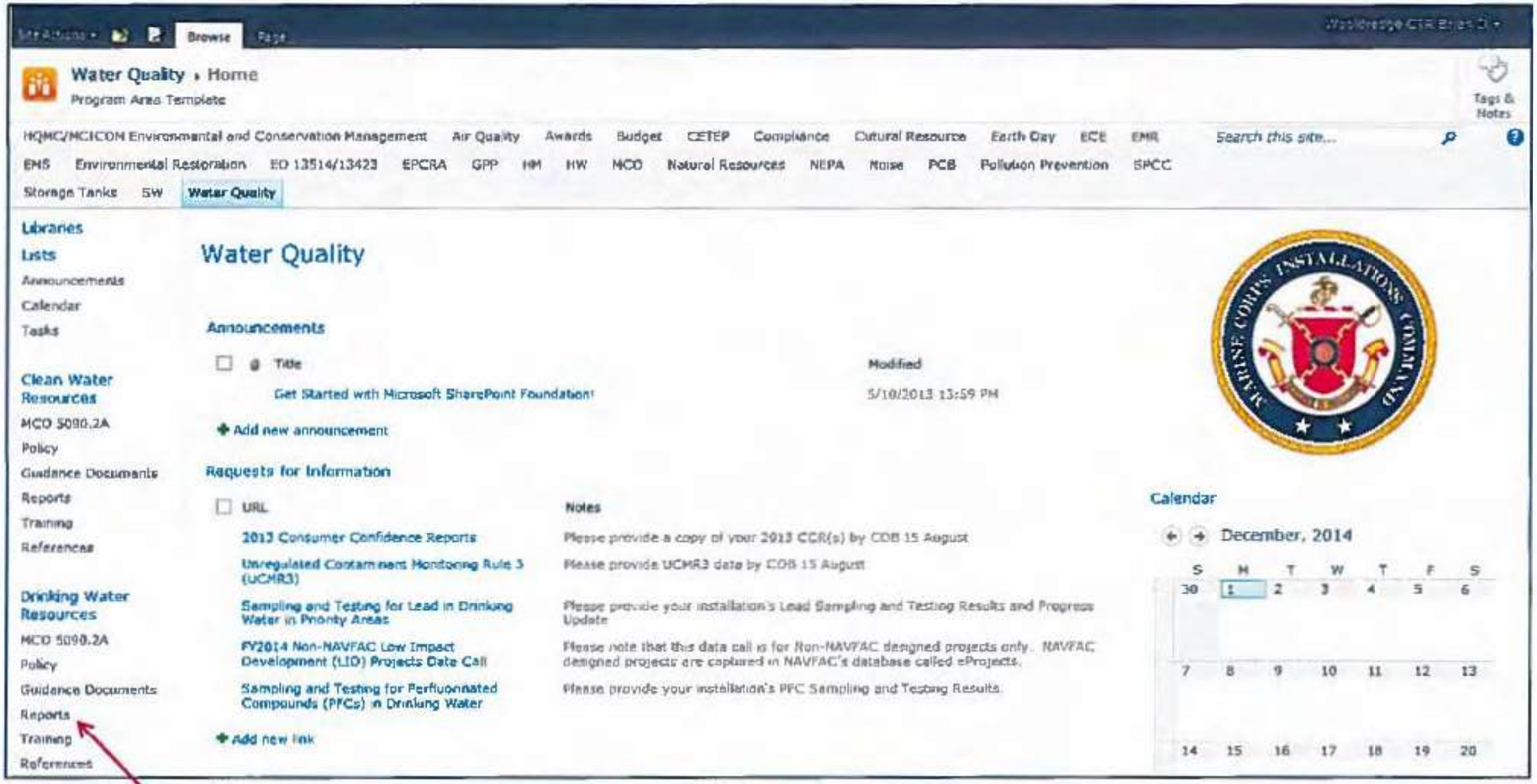
Click the *"Sampling and Testing for Perfluorinated Compounds (PFCs) in Drinking Water"* link

2. Upload your installation's PFC Sampling and Testing Results spreadsheet.

3. Update the properties of your uploaded document.



4. Locate your uploaded documents by using the shortcuts along the left-hand sidebar.



Click "Reports" under the "Drinking Water Resources" library to view your successfully uploaded documents.

ADDITIONAL RESOURCES AND COMMUNICATION TOOLS

1. Emerging Contaminants Fact Sheet – PFOS and PFOA:
http://www2.epa.gov/sites/production/files/2014-04/documents/factsheet_contaminant_pfos_pfoa_march2014.pdf

2. Peer Review of Health Effects Documents for PFOA and PFOS:
http://water.epa.gov/drink/standards/upload/Peer-Review-of-Health-Effects-Documents-for-PFOA-and-PFOS-Factsheet-February-2014.pdf

3. New Hampshire Department of Health and Human Services Investigation into PFC Contaminant Found in Drinking Water at Pease Tradeport (formally Pease Air Force Base):
http://www.dhhs.nh.gov/dphs/investigation-pease.htm

4. Agency for Toxic Substances and Disease Registry: Toxicological Profile for Perfluoroalkyls - http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=1117&tid=237

5. Centers for Disease Control and Prevention: National Biomonitoring Program – Perfluorochemicals (PFCs) - http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html

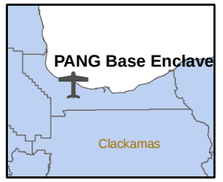
Site # 41B55 & 41704 Jackson Armory & PANG Base Enclave

Legend

- GATE
- HAZMAT STORAGE
- HAZWASTE STORAGE
- SPILL CONTAINMENT TANK
- SPILL RESPONSE KIT
- ELECTRICAL
- ELECTRIC POLE
- GAS METER
- GAS
- CATCH BASIN
- STORM
- TELCOM
- WastewaterUtilityNode
- HYDRANT
- WATER
- FENCE
- AccessControl_L
- TELECOM
- ELECTRICAL
- GAS
- STORM
- SEWER
- WATER
- RoadCenterline

Site

- 41704 - Enclave - Licensed from ANG
- 41B55 - Jackson Armory
- HAZMAT STORAGE AREA
- SPILL CONTAINMENT AREA
- Structure_A
- VehicleParking
- SIDEWALK
- STRUCTURE
- GroundsMaintenance
- PavementSection_Road_A



Address:
6255 NE Cornfoot Rd
Portland, OR
97218

1 inch = 109 feet

0 62.5 125 250 Feet

T: 1 N R: 2 E Sec: 18
NAD 83 UTM Zone 10 North
Projection: Transverse Mercator
Aug 2018

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PANG Base Enclave

6801 NE Cornfoot Rd

Portland, OR 97218

Inquiry Number: 5621379.5

April 15, 2019

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

04/15/19

Site Name:

PANG Base Enclave
6801 NE Cornfoot Rd
Portland, OR 97218
EDR Inquiry # 5621379.5

Client Name:

AECOM
12120 Shamrock Plaza
Omaha, NE 68154
Contact: Brittany Kirchmann

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Search Results:

Year	Scale	Details	Source
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2014	1"=500'	Flight Year: 2014	USDA/NAIP
2011	1"=500'	Flight Year: 2011	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
2000	1"=500'	Acquisition Date: July 29, 2000	USGS/DOQQ
1994	1"=500'	Flight Date: June 20, 1994	USGS
1984	1"=1000'	Flight Date: September 18, 1984	USGS
1981	1"=500'	Flight Date: July 26, 1981	USDA
1975	1"=500'	Flight Date: September 13, 1975	USGS
1970	1"=500'	Flight Date: July 06, 1970	USGS
1963	1"=500'	Flight Date: June 14, 1963	USDA
1960	1"=500'	Flight Date: July 17, 1960	USGS
1955	1"=500'	Flight Date: August 06, 1955	USDA
1951	1"=500'	Flight Date: July 27, 1951	USGS
1948	1"=500'	Flight Date: July 24, 1948	USDA
1935	1"=500'	Flight Date: January 01, 1935	ACOE

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EDR

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EDR

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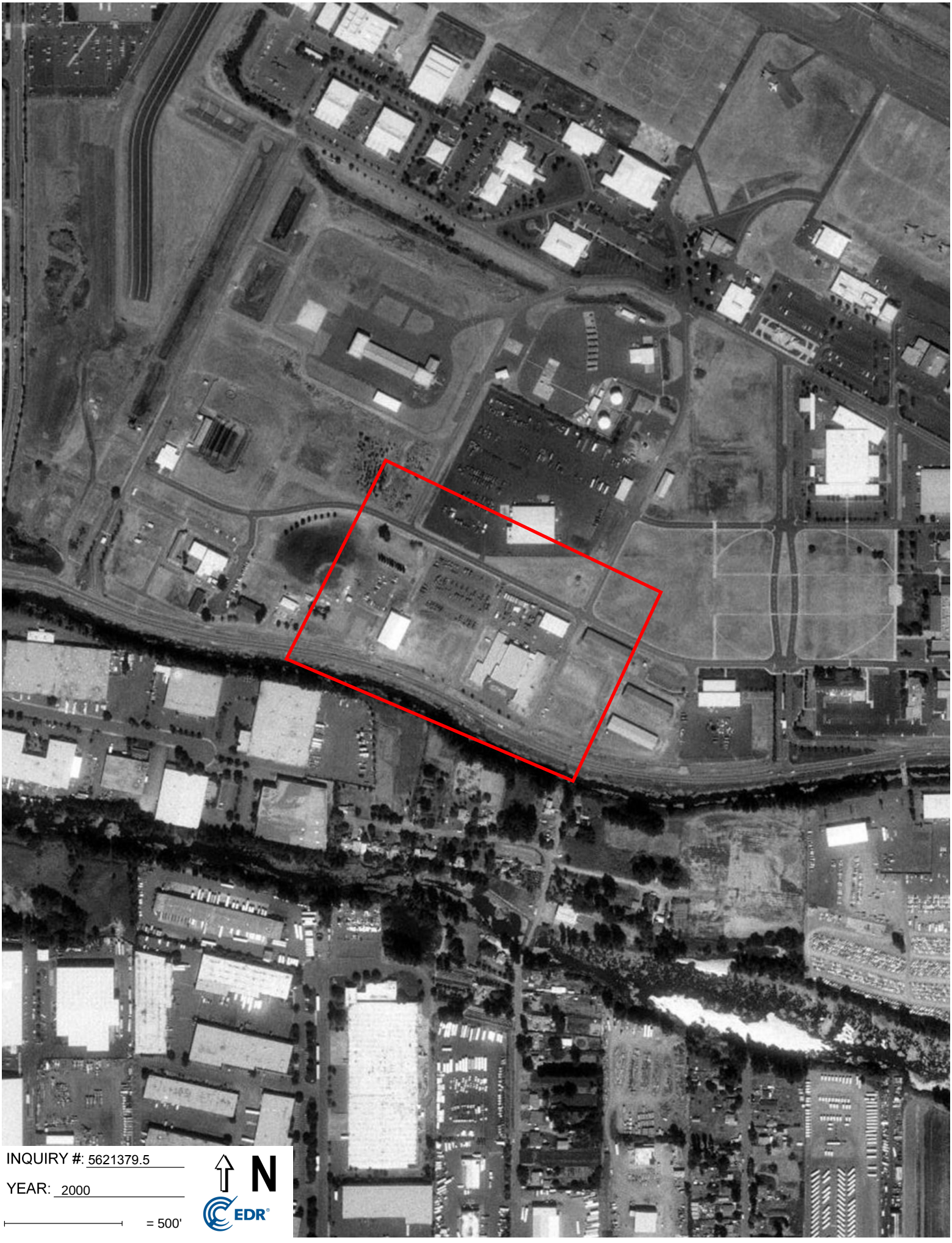
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YEAR: 1984

= 1000'

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EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.

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YEAR: 1975

= 500'

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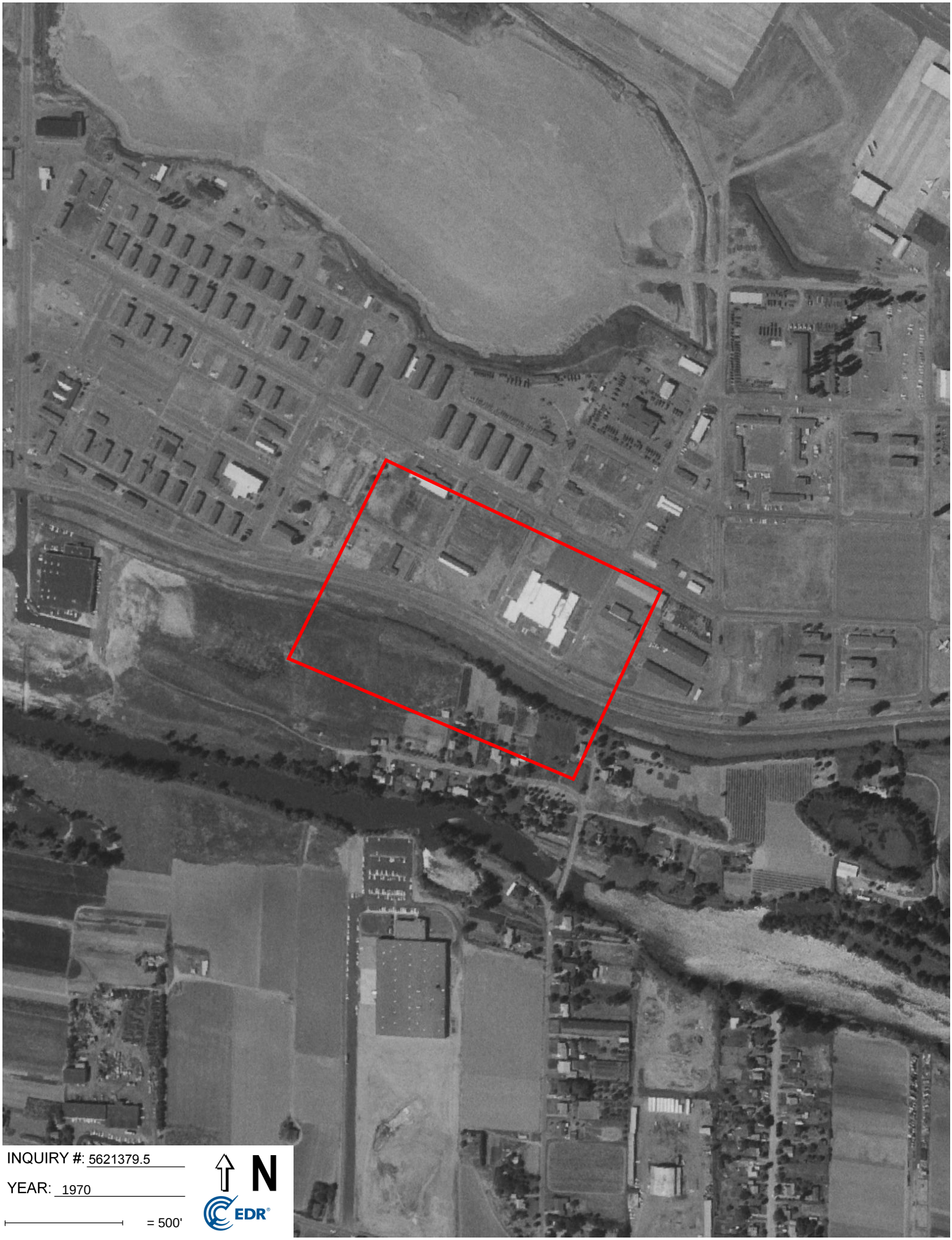
EDR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EDR

INQUIRY #: 5621379.5

YEAR: 1963

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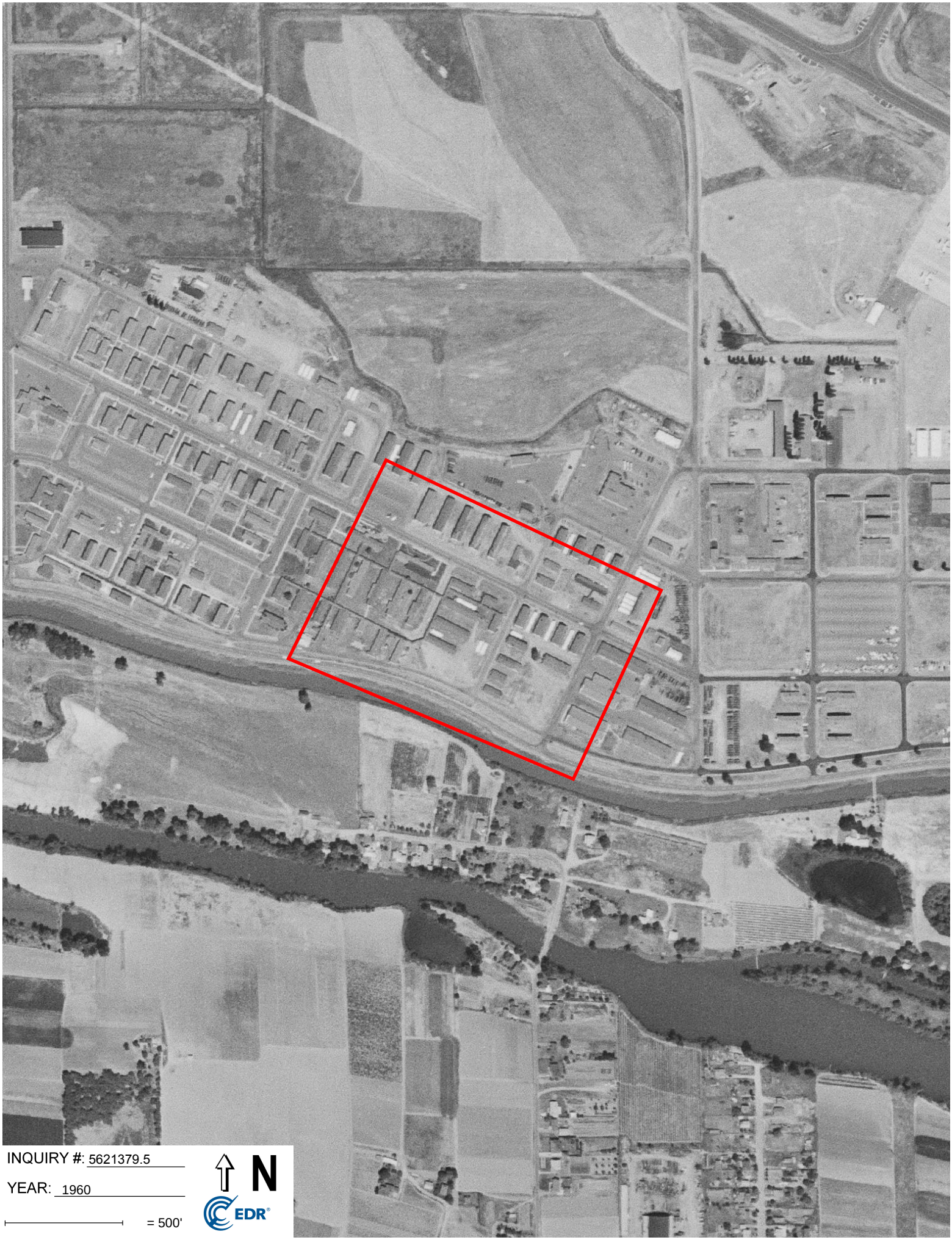
EDR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YEAR: 1960
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EDR

INQUIRY #: 5621379.5

YEAR: 1955

= 500'

N

EDR

INQUIRY #: 5621379.5
YEAR: 1951
= 500'
N
EDR

PANG Base Enclave
6801 NE Cornfoot Rd
Portland, OR 97218

Inquiry Number: 5621379.3
April 15, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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04/15/19

Site Name:

PANG Base Enclave
6801 NE Cornfoot Rd
Portland, OR 97218
EDR Inquiry # 5621379.3

Client Name:

AECOM
12120 Shamrock Plaza
Omaha, NE 68154
Contact: Brittany Kirchmann

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Certified Sanborn Results:

Certification # D3FB-4B3A-BD92

PO # NA

Project PANG Base Enclave

UNMAPPED PROPERTY

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Sanborn® Library search results

Certification #: D3FB-4B3A-BD92

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- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

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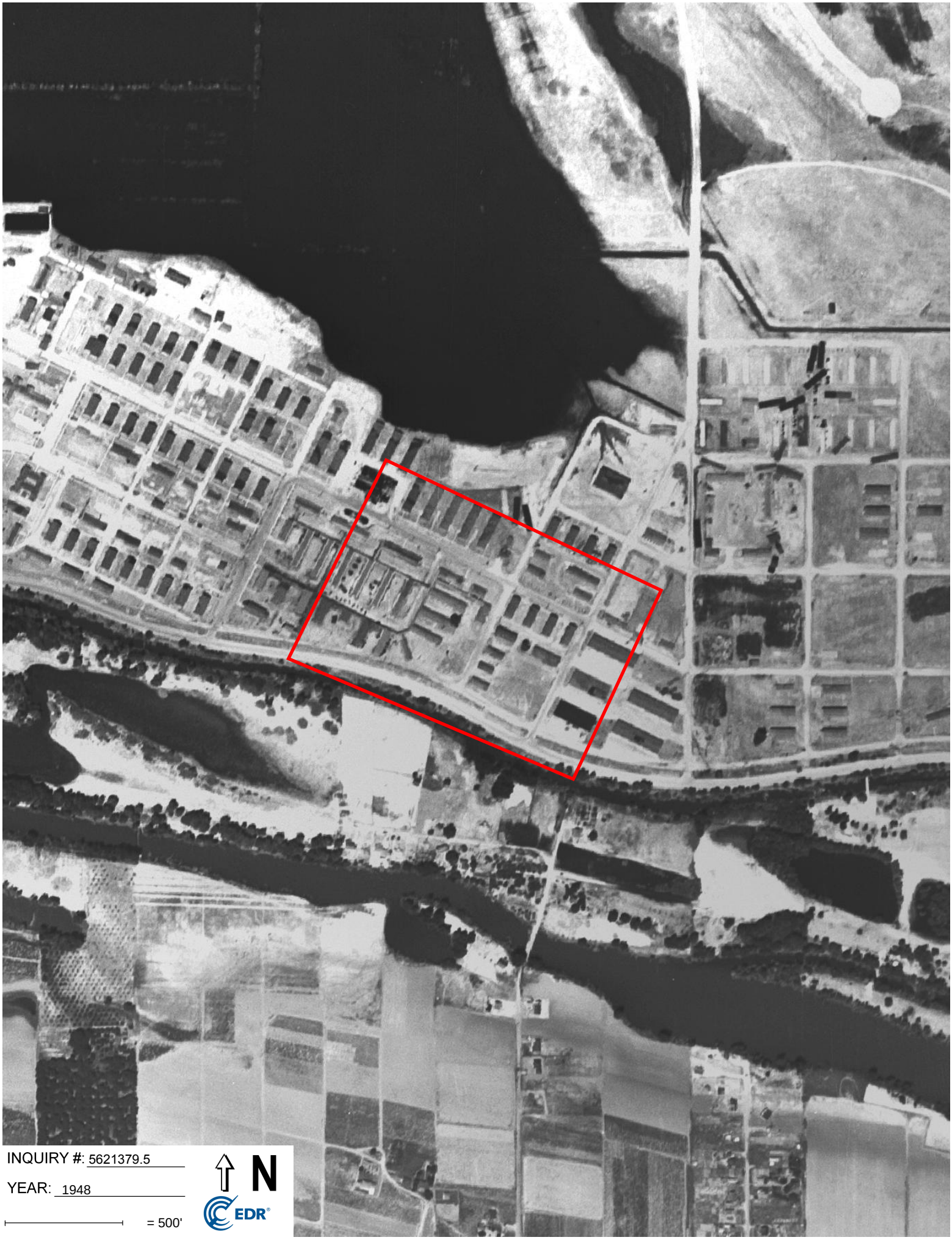

INQUIRY #: 5621379.5

YEAR: 1948

= 500'

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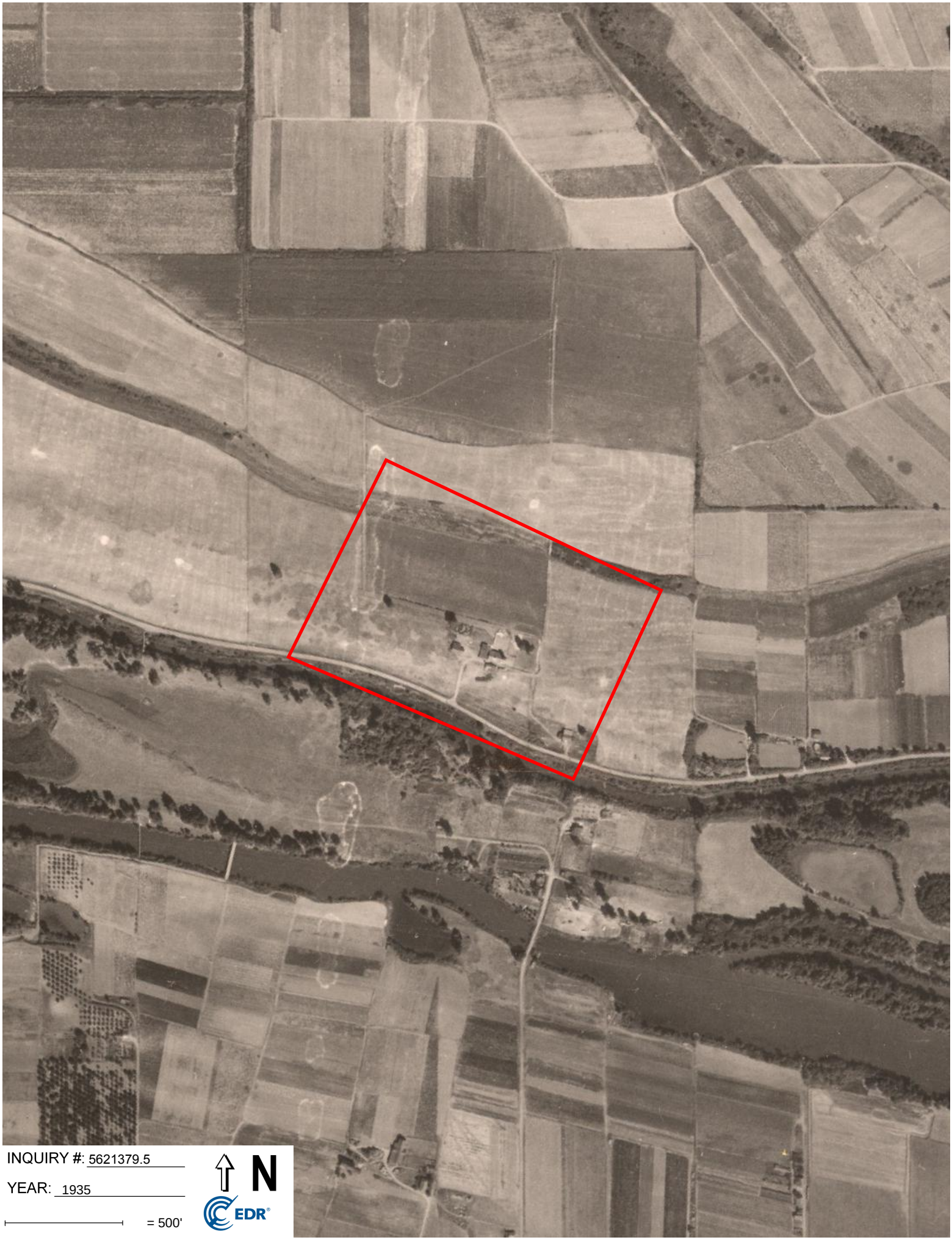
EDR



INQUIRY #: 5621379.5

YEAR: 1935

= 500'

N

EDR

PANG Base Enclave
6801 NE Cornfoot Rd
Portland, OR 97218

Inquiry Number: 5621379.2s
April 15, 2019

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

6801 NE CORNFOOT RD
PORTLAND, OR 97218

COORDINATES

Latitude (North):	45.5755300 - 45° 34' 31.90''
Longitude (West):	122.5984500 - 122° 35' 54.42''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	531330.8
UTM Y (Meters):	5046748.5
Elevation:	22 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	6067232 MOUNT TABOR, OR
Version Date:	2014

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140630, 20150728
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
6801 NE CORNFOOT RD
PORTLAND, OR 97218

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	HEATING OIL TANK	6801 NE CORNFOOT ROA	OR RGA LUST		TP
A2		6801 NORTH EAST CORN	ERNS		TP
A3	USAF ANG PORTLAND	142 FIG/EM 6801 NE C	OR MANIFEST		TP
A4	OREGON AIR NATIONAL	6801 NE CORNFOOT RD	OR LUST, OR UST		TP
A5		6801 NE CORNFOOT RD.	OR SPILLS		TP
A6	OREGON AIR NATIONAL	6801 NE CORNFOOT RD	OR RGA HWS		TP
A7	OR AIR NATIONAL GUAR	6801 NE CORNFOOT RD	OR RGA LUST		TP
A8	OREGON AIR NATIONAL	6801 NE CORNFOOT DR.	OR RGA HWS		TP
A9	OREGON AIR NATIONAL	6801 NE CORNFOOT DR.	OR CRL, OR ECSI, OR SWF/LF, OR AST, OR VCP, OR...		TP
A10	US DOD USAF PORTLAND	6801 NE CORNFOOT RD	TRIS		TP
A11	PORTLAND AIR NATIONA	6801 NE CORN FOOT RD	DOCKET HWC		TP
A12		6801 NE CORNFOOT RD	OR HAZMAT		TP
A13	USAF ANG PORTLAND	142 FIG/EM 6801 NE C	SEMS, RCRA-LQG, PADS		TP
A14	HEATING OIL TANK	6801 NE CORNFOOT ROA	OR LUST		TP
A15	OREGON AIR NATIONAL	6801 NE CORNFOOT RD.	OR RGA HWS		TP
A16	PORTLAND AIR NATIONA	6801 NE CORNFOOT DR.	FINDS, ECHO		TP
A17	USAF OREGON AIR NATI	6801 NE CORNFOOT RD	FINDS, ECHO		TP
A18	OREGON AIR NATIONAL	6801 NE CORNFOOT ROA	OR RGA LUST		TP
A19	OREGON AIR NATIONAL	6801 NE CORNFOOT ROA	OR RGA LUST		TP
A20	OR AIR NATIONAL GUAR	6801 NE CORNFOOT RD	OR RGA LUST		TP
A21		6801 NORTH EAST CORN	ERNS		TP
Reg	COLUMBIA SLOUGH	PORTLAND RD	SEMS-ARCHIVE	Same	1 ft.
A22	JACKSON READINESS CE	6255 NE CORNFOOT RD	OR ECSI, OR VCP	Lower	1 ft.
23	HEATING OIL TANK	CORNFOOT RD / BONG S	OR LUST	Lower	1 ft.
A24	JACKSON ARMORY	6255 NE CORNFOOT DR	OR LUST, OR UST	Lower	1 ft.
B25	SILVER EAGLE MANUFAC	5825 NE SKYPORT WAY	RCRA-CESQG, FINDS, ECHO, OR AIRS, CA HAZNET, OR...	Lower	252, 0.048, WSW
B26	MILLER BRANDS INC	5825 NE SKYPORT WAY	OR LUST, OR UST, OR AST, OR HSIS, OR UIC	Lower	252, 0.048, WSW
C27	HEATING OIL TANK	6135 NE BRYANT ST	OR LUST	Lower	311, 0.059, SSW
C28	HEATING OIL TANK	6110 NE BRYANT	OR LUST	Lower	469, 0.089, SSW
29	BLOCK GRAPHICS INC	5822 NE SKYPORT WAY	RCRA-CESQG, FINDS, ECHO, OR HSIS, OR MANIFEST	Lower	546, 0.103, SW
30	HEATING OIL TANK	5920 NE BRYANT ST	OR LUST	Lower	567, 0.107, SW
D31	BLOCK BUSINESS FORMS	5812 NE SKYPORT WAY	OR UST	Lower	581, 0.110, WSW
D32	PACIFIC TRUCK COLORS	5536 NE SKYPORT WAY	RCRA NonGen / NLR	Lower	690, 0.131, WSW
D33	ROADMASTER INC	5602 NE SKYPORT WAY	RCRA NonGen / NLR, FINDS, ECHO	Lower	690, 0.131, WSW
D34	SHERWIN WILLIAMS CO	5640 NE SKYPORT WAY	RCRA-LQG, OR HAZMAT, FINDS, ECHO, OR HSIS, OR...	Lower	701, 0.133, WSW
35	HEATING OIL TANK	6801 NE 63RD AVE	OR LUST	Lower	726, 0.138, South
E36	SAPA PROFILES	7320 NE 55TH AVE	RCRA NonGen / NLR	Lower	837, 0.159, West
E37	SAPA PROFILES INC	7320 NE 55TH AVE	OR AST, OR SPILLS, OR HSIS, OR NPDES	Lower	837, 0.159, West
E38	KYSOR PANEL SYSTEMS	7320 NE 55TH AVE	OR UST, RCRA NonGen / NLR	Lower	837, 0.159, West

MAPPED SITES SUMMARY

Target Property Address:
6801 NE CORNFOOT RD
PORTLAND, OR 97218

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
F39	INK COMPANY THE	6705 NE 59TH PL	RCRA NonGen / NLR, FINDS, ECHO	Higher	973, 0.184, SSW
40	TNT UNITED TRUCKLINE	6829 NE 59TH PL	OR UST	Lower	990, 0.188, SW
F41	NW TRANSPORT SERVICE	6823 NE 59TH PL	OR LUST, OR UST	Higher	1135, 0.215, SSW
F42	ETEC, LLC	6635 NE 59TH PL	RCRA-CESQG	Higher	1200, 0.227, SSW
F43	CLARKE AMERICAN	6623 NE 59TH PL	RCRA NonGen / NLR, FINDS, ECHO	Higher	1204, 0.228, SSW
G44	VININGS INDUSTRIES I	7325 NE 55TH AVE	RCRA NonGen / NLR, FINDS, ECHO	Lower	1233, 0.234, West
G45	PORTLAND INTERNATION	5555 NE CORNFOOT RD	OR UST	Lower	1249, 0.237, West
G46	SAPA PROFILES INC	5325 NE SKYPORT WAY	OR AST, OR SPILLS, OR HAZMAT, OR AIRS, OR HSIS, OR...	Lower	1282, 0.243, West
G47	SAPA INC - COATINGS	5325 NE SKYPORT WAY	RCRA-LQG, TRIS, ECHO, OR MANIFEST	Lower	1282, 0.243, West
H48	PORTLAND WILLAMETTE	6800 NE 59TH PL	OR ECSI, OR HAZMAT, OR HSIS, OR NPDES, OR UIC	Higher	1321, 0.250, SSW
H49	PORTLAND WILLAMETTE	6800 NE 59TH PL. (UP	OR ECSI	Higher	1321, 0.250, SSW
50	WASTE MANAGEMENT OF	7227 NE 55TH AVE	OR SWF/LF, OR Financial Assurance	Lower	1365, 0.259, West
I51	PORTLAND COMPOST FAC	SEC18,T1N,R2E	OR SWF/LF	Higher	1597, 0.302, SW
I52	METRO METALS NORTHWE	5611 NE COLUMBIA BLV	WA SWRCY	Higher	1620, 0.307, SW
I53	METRO METALS NW INC	5611 NE COLUMBIA BLV	OR CRL, OR ECSI, OR AST, OR VCP, OR SPILLS, OR...	Higher	1620, 0.307, SW
54	WASTE MANAGEMENT OF	5330 NE SKYPORT WAY	OR LUST, OR UST	Lower	1650, 0.312, West
55	TOTAL RECLAIM	6427 NE 59TH PL	WA SWRCY	Higher	1772, 0.336, SSW
J56	SOIL CONTAMINATION -	5700 NE TRANSPORT WA	OR ECSI, OR CRL	Lower	1916, 0.363, NNW
57	COLWOOD NATIONAL GOL	7007 NE CORNFOOT RD.	OR ECSI, OR VCP, OR BROWNFIELDS	Lower	1929, 0.365, East
J58	HEATING OIL TANK	5580 NE TRANPORT WAY	OR LUST	Lower	1964, 0.372, NW
K59	NORTHSIDE FORD TRUCK	6221 NORTHEAST COLUM	RCRA-CESQG, OR LUST, OR UST, OR AST, FINDS, ECHO,...	Higher	2039, 0.386, South
60	OREGON NATIONAL GUAR	PORTLAND AIRPORT	SEMS-ARCHIVE	Lower	2115, 0.401, NNW
K61	HARRISON PROPERTY	6100 NE COLUMBIA BLV	OR LUST, OR UST	Higher	2130, 0.403, South
L62	SONSRAY MACHINERY LL	6455 NE COLUMBIA BLV	OR LUST, OR UST, OR AST, OR HSIS	Higher	2148, 0.407, South
63	ATLAS TOWING	5327 NE COLUMBIA BLV	OR ECSI, OR VCP	Higher	2245, 0.425, WSW
64	SPARKS-WAGNER INC	5601 NE COLUMBIA BLV	OR ECSI, OR LUST, OR UST, OR AST, OR HSIS	Higher	2284, 0.433, SW
65	PORT OF PORTLAND - A	CORNFOOT RD & BONG S	OR LUST, OR UST	Higher	2291, 0.434, East
L66	COLUMBIA WOODWORKING	6432 NE COLUMBIA BLV	SEMS-ARCHIVE	Higher	2303, 0.436, South
L67	COLUMBIA WOODWORKING	6432 NE COLUMBIA BLV	OR ECSI, FINDS, OR UIC	Higher	2303, 0.436, South
M68	HEATING OIL TANK	6849 NE COLUMBIA BLV	OR LUST	Higher	2335, 0.442, SE
M69	CMKB PROPERTIES LLC	6849 NE COLUMBIA BLV	OR LUST, OR SPILLS	Higher	2335, 0.442, SE
M70	OREGON FRESH FARMS,	6849 NE COLUMBIA BLV	OR SWF/LF, OR LUST, OR SPILLS, FINDS, ECHO, OR...	Higher	2335, 0.442, SE
71	MULTNOMAH CO SD 1 WH	5135 NE COLUMBIA	RCRA-CESQG, OR LUST, PADS, OR MANIFEST, OR UIC	Higher	2442, 0.463, WSW
N72	SENTER TOOL SERVICE	5413 NE COLUMBIA BLV	OR ECSI, OR LUST, OR UST, OR UIC	Higher	2464, 0.467, SW
N73	MILLER PROPERTY	5421 NE COLUMBIA BLV	OR ECSI, OR HAZMAT, OR UIC	Higher	2467, 0.467, SW
N74	TRAIL EQUIPMENT COMP	5440 NE COLUMBIA BLV	OR LUST, OR UST, OR HSIS	Higher	2514, 0.476, SW
75	HAMILTON ENGINE SALE	5540 NE COLUMBIA BLV	OR LUST, OR UST, OR AST, OR HSIS	Higher	2540, 0.481, SW
O76	POWELL DISTRIBUTING	6021 NE PORTLAND HWY	OR LUST, OR UST, OR AIRS	Higher	2623, 0.497, South
77	OREGON NATIONAL GUAR	SOUTHWEST PORTION OF	OR ECSI, OR VCP	Lower	2746, 0.520, WNW

MAPPED SITES SUMMARY

Target Property Address:
6801 NE CORNFOOT RD
PORTLAND, OR 97218

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
78	P&L ENTERPRISE	6750 NE COLUMBIA BLV	OR ECSI	Higher	2764, 0.523, SSE
79	PARKROSE AUTO CENTER	5242 NE COLUMBIA BLV	OR ECSI	Higher	2764, 0.523, SW
O80	MARTINEZ AUTO REBUIL	5916 NE PORTLAND HWY	OR ECSI	Higher	2794, 0.529, SSW
81	HERTZ EQUIPMENT RENT	4939 NE COLUMBIA BLV	OR CRL, OR ECSI, OR AST, OR HSIS, OR UIC	Higher	2883, 0.546, WSW
82	FERNLEY TIRE FIRE	5411 NE PORTLAND HWY	OR ECSI, FINDS, OR UIC	Higher	2941, 0.557, SW
83	PORTLAND INTERNATION	PORTLAND INTERNATION	OR ECSI, OR VCP	Lower	2966, 0.562, NNW
84	PORTLAND AIR BASE		FUDS	Lower	3006, 0.569, NNE
85	HALTON CO	6654 NE 47TH AVE	OR ECSI, OR AST, OR INST CONTROL, OR VCP, RCRA...	Higher	3022, 0.572, WSW
86	PORTLAND GROUND RUN-	5909 NE MCGUIRE AVE.	OR ECSI, OR VCP	Lower	3028, 0.573, NNW
87	PARAMOUNT PEST CONTR	5207 NE PORTLAND HWY	OR ECSI, OR LUST, OR UST	Higher	3035, 0.575, SW
88	FORKLIFT SERVICES OF	7001 NE COLUMBIA BLV	OR ECSI, OR VCP, OR HSIS	Higher	3136, 0.594, SE
89	AVIATION EXTERIORS	4635 NE CORNFOOT DR	OR ECSI, OR AST, OR VCP, OR SPILLS, RCRA NonGen /...	Higher	3452, 0.654, WNW
90	PORTLAND MAINTENANCE	7111 NE ALDERWOOD RD	OR ECSI, OR AST, OR VCP, OR SPILLS, OR HAZMAT, OR...	Lower	3489, 0.661, East
P91	ODEQ STATE SUPERFUND	7039 NE 46TH AVE	SEMS-ARCHIVE, RCRA-CESQG, OR CRL, OR ECSI, OR ENG.	Lower	3633, 0.688, West
92	SOUTH CARGO RELOAD R	PORTLAND INTERNATION	OR ECSI, OR VCP	Lower	3674, 0.696, NNW
93	MCBRIDE SLOUGH (M1-5	8000 BLOCK, NE ALDER	OR ECSI, OR VCP	Lower	3683, 0.698, East
P94	KUHNAU PROPERTY	6915 NE 46TH AVE.	OR ECSI, OR VCP	Higher	3700, 0.701, West
95	AB FINISHING TECH	6724 NE 46TH AVE.	OR ECSI, OR HSIS, OR UIC	Higher	3735, 0.707, WSW
96	SEASTROM PROPERTY	6640 NE PORTLAND HWY	OR ECSI, OR BROWNFIELDS, OR MANIFEST	Higher	3758, 0.712, SSE
Q97	PIERCE PACIFIC MANUF	6540 NE 42ND AVE.	OR ECSI, OR VCP, OR UIC	Higher	3918, 0.742, WSW
98	AIRCRAFT SERVICE INT	PORTLAND INTERNATION	OR ECSI, OR CRL	Lower	4001, 0.758, NW
Q99	OLYMPIC FOUNDRY INC.	6530 NE 42ND AVE.	OR ECSI, OR UIC	Higher	4042, 0.766, WSW
100	HALTON COMPANY THE	4421 NE COLUMBIA BLV	OR ECSI, OR LUST, OR UST, OR AST, OR INST CONTROL,...	Higher	4266, 0.808, WSW
101	KILLINGSWORTH FAST D	NE 75TH AVE., BOUNDE	OR ECSI, OR BROWNFIELDS	Higher	4633, 0.877, SE
R102	EUDALY BROS	6920 NE 42ND AVE	OR ECSI, OR LUST, OR UST, OR VCP, OR UIC	Higher	4715, 0.893, West
103	THOMSON EQUIPMENT CO	7201 NE 42ND AVE	OR ECSI, OR HSIS, OR NPDES, OR UIC	Lower	4796, 0.908, West
R104	CHIMNEY TEK/SPLINTER	3881 NE BRYANT ST	OR ECSI	Higher	4805, 0.910, West
R105	KENRICH PRODUCTS, IN	6853 NE 42ND AVE., B	OR ECSI	Higher	4829, 0.915, West
R106	AMERICAN STEEL PRODU	3885 NE BRYANT ST.	OR ECSI	Higher	4830, 0.915, West
R107	JOHN L. JERSEY AND S	7015 NE 42ND AVE.	OR ECSI, OR VCP, OR UIC	Higher	4831, 0.915, West
R108	DALE JERSEY PROPERTY	6845 NE 42ND AVE	OR ECSI, OR VCP	Higher	4848, 0.918, West
109	PORTLAND INT'L AIRPO	PORTLAND INTERNATION	OR ECSI, OR VCP	Lower	4881, 0.924, NNW
S110	AIRCRAFT SERVICE INT	(NEAR) 7000 NE AIRPO	OR CRL, OR ECSI, OR VCP	Higher	5000, 0.947, NNE
S111	ALASKA AIRLINES	7000 NE AIRPORT WAY	OR CRL, OR ECSI, OR LUST, OR AST, OR ENG CONTROLS,..	Higher	5000, 0.947, NNE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
HEATING OIL TANK 6801 NE CORNFOOT ROA PORTLAND, OR	OR RGA LUST Facility ID: 26-88-0095	N/A
6801 NORTH EAST CORN 6801 NORTH EAST CORN PORTLAND, OR 97218	ERNS NRC Report #: 1170583	N/A
USAF ANG PORTLAND 142 FIG/EM 6801 NE C PORTLAND, OR 97218	OR MANIFEST Status: LQG Status: Large quantity generator EPA Id: OR1570024264	N/A
OREGON AIR NATIONAL 6801 NE CORNFOOT RD PORTLAND, OR 97218	OR LUST Facility ID: 26-93-0213 Cleanup Complete: 01/02/2002 OR UST Facility ID: 8865	N/A
6801 NE CORNFOOT RD. 6801 NE CORNFOOT RD. PORTLAND, OR 97218	OR SPILLS Facility ID: 2014-0870	N/A
OREGON AIR NATIONAL 6801 NE CORNFOOT RD PORTLAND, OR	OR RGA HWS	N/A
OR AIR NATIONAL GUAR 6801 NE CORNFOOT RD PORTLAND, OR	OR RGA LUST Facility ID: 26-93-0213	N/A
OREGON AIR NATIONAL 6801 NE CORNFOOT DR. PORTLAND, OR	OR RGA HWS	N/A

EXECUTIVE SUMMARY

OREGON AIR NATIONAL 6801 NE CORNFOOT DR. PORTLAND, OR 97218	OR CRL Facility Status: Partial No Further Action Facility Id: 1372 OR ECSI Investigation: Listed on the CRL/Inventory State ID Number: 1372 OR SWF/LF Permit Status: Withdrawn Facility Id: 112214 OR AST Facility Id: 033539 OR VCP ECS Site ID: 1372 OR SPILLS Facility ID: 2017-0504 Facility ID: 2004-0728 OR HAZMAT Facility Id: 020001 Facility Id: 930106 OR AIRS OR HSIS Facility Id: 033539 OR NPDES WQ File Nbr: 122687 WQ File Nbr: 123448 WQ File Nbr: 107654 WQ File Nbr: 121788 WQ File Nbr: 126128 OR UIC Facility Status: Registered & RA UIC Number: 10184	N/A
US DOD USAF PORTLAND 6801 NE CORNFOOT RD PORTLAND, OR 97218	TRIS TRIS ID: 97218SRFRC681NE	97218SRFRC681NE
PORTLAND AIR NATIONA 6801 NE CORN FOOT RD PORTLAND, OR 97208	DOCKET HWC	N/A
6801 NE CORNFOOT RD 6801 NE CORNFOOT RD PORTLAND, OR 97218	OR HAZMAT Facility Id: 950091	N/A
USAF ANG PORTLAND 142 FIG/EM 6801 NE C PORTLAND, OR 97218	SEMS	OR1570024264

EXECUTIVE SUMMARY

	Site ID: 1001210 EPA Id: OR1570024264 RCRA-LQG EPA ID:: OR1570024264 PADS EPAID:: OR1570024264	
HEATING OIL TANK 6801 NE CORNFOOT ROA PORTLAND, OR 97218	OR LUST Facility ID: 26-88-0095 Cleanup Complete: 08/18/1995	N/A
OREGON AIR NATIONAL 6801 NE CORNFOOT RD. PORTLAND, OR	OR RGA HWS	N/A
PORTLAND AIR NATIONA 6801 NE CORNFOOT DR. PORTLAND, OR 97218	FINDS Registry ID:: 110070503491 ECHO Registry ID: 110070503491	N/A
USAF OREGON AIR NATI 6801 NE CORNFOOT RD PORTLAND, OR 97218	FINDS Registry ID:: 110020517591 ECHO Registry ID: 110020517591	N/A
OREGON AIR NATIONAL 6801 NE CORNFOOT ROA PORTLAND, OR	OR RGA LUST Facility ID: 26-88-0095	N/A
OREGON AIR NATIONAL 6801 NE CORNFOOT ROA PORTLAND, OR	OR RGA LUST Facility ID: 26-88-0095	N/A
OR AIR NATIONAL GUAR 6801 NE CORNFOOT RD PORTLAND, OR	OR RGA LUST Facility ID: 26-98-1102	N/A
6801 NORTH EAST CORN 6801 NORTH EAST CORN PORTLAND, OR 97218	ERNS NRC Report #: 718055	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-SQG ---------- RCRA - Small Quantity Generators

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

FEMA UST ---------- Underground Storage Tank Listing
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ---------- Voluntary Cleanup Priority Listing

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

OR SWRCY ---------- Recycling Facility Location Listing
OR HIST LF ---------- Old Closed SW Disposal Sites
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

OR AOCONCERN ---------- Columbia Slough
US HIST CDL ---------- Delisted National Clandestine Laboratory Register
OR CDL ---------- Uninhabitable Drug Lab Properties
US CDL ---------- National Clandestine Laboratory Register

Local Land Records

LIENS 2 ---------- CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ---------- Hazardous Materials Information Reporting System
OR SPILLS 90 ---------- SPILLS 90 data from FirstSearch

Other Ascertainable Records

DOD ---------- Department of Defense Sites
SCRD DRYCLEANERS ---------- State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ---------- Financial Assurance Information
EPA WATCH LIST ---------- EPA WATCH LIST
2020 COR ACTION ---------- 2020 Corrective Action Program List
TSCA ---------- Toxic Substances Control Act
SSTS ---------- Section 7 Tracking Systems
ROD ---------- Records Of Decision
RMP ---------- Risk Management Plans
RAATS ---------- RCRA Administrative Action Tracking System
PRP ---------- Potentially Responsible Parties
ICIS ---------- Integrated Compliance Information System
FTTS ---------- FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ---------- Material Licensing Tracking System
COAL ASH DOE ---------- Steam-Electric Plant Operation Data
COAL ASH EPA ---------- Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ---------- PCB Transformer Registration Database
RADINFO ---------- Radiation Information Database
HIST FTTS ---------- FIFRA/TSCA Tracking System Administrative Case Listing

DOT OPS ---------- Incident and Accident Data
CONSENT ---------- Superfund (CERCLA) Consent Decrees
INDIAN RESERV ---------- Indian Reservations
FUSRAP ---------- Formerly Utilized Sites Remedial Action Program
UMTRA ---------- Uranium Mill Tailings Sites
LEAD SMELTERS ---------- Lead Smelter Sites
US AIRS ---------- Aerometric Information Retrieval System Facility Subsystem
US MINES ---------- Mines Master Index File
ABANDONED MINES ---------- Abandoned Mines
UXO ---------- Unexploded Ordnance Sites
FUELS PROGRAM ---------- EPA Fuels Program Registered Listing
OR COAL ASH ---------- Coal Ash Disposal Sites Listing
OR DRYCLEANERS ---------- Drycleaning Facilities
OR Enforcement ---------- Enforcement Action Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---------- EDR Proprietary Manufactured Gas Plants
EDR Hist Auto ---------- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner ---------- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

OR RGA LF ---------- Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes

available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

A review of the SEMS-ARCHIVE list, as provided by EDR, and dated 02/06/2019 has revealed that there are 3 SEMS-ARCHIVE sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
COLUMBIA SLOUGH Site ID: 1000493 EPA Id: ORD980723076	PORTLAND RD	0 - 1/8 (0.000 mi.)	0	182
COLUMBIA WOODWORKING Site ID: 1000494 EPA Id: ORD980723134	6432 NE COLUMBIA BLV	S 1/4 - 1/2 (0.436 mi.)	L66	624

Lower Elevation	Address	Direction / Distance	Map ID	Page
OREGON NATIONAL GUAR Site ID: 1000964 EPA Id: ORD981770316	PORTLAND AIRPORT	NNW 1/4 - 1/2 (0.401 mi.)	60	601

Federal RCRA generators list

RCRA-LQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

A review of the RCRA-LQG list, as provided by EDR, and dated 03/01/2018 has revealed that there are 2 RCRA-LQG sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
SHERWIN WILLIAMS CO EPA ID:: ORD000602490	***5640 NE SKYPORT WAY***	***WSW 1/8 - 1/4 (0.133 mi.)***	***D34***	***247***
SAPA INC - COATINGS EPA ID:: ORD982656076	***5325 NE SKYPORT WAY***	***W 1/8 - 1/4 (0.243 mi.)***	***G47***	***377***

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 03/01/2018 has revealed that there are

3 RCRA-CESQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ETEC, LLC EPA ID:: ORQ000031100	6635 NE 59TH PL	SSW 1/8 - 1/4 (0.227 mi.)	F42	350

Lower Elevation	Address	Direction / Distance	Map ID	Page
SILVER EAGLE MANUFAC EPA ID:: ORQ000004770	***5825 NE SKYPORT WAY***	***WSW 0 - 1/8 (0.048 mi.)***	***B25***	***187***
BLOCK GRAPHICS INC EPA ID:: ORD096240569	***5822 NE SKYPORT WAY***	***SW 0 - 1/8 (0.103 mi.)***	***29***	***224***

State- and tribal - equivalent CERCLIS

OR CRL: Sites that are or may be contaminated and may require cleanup.

A review of the OR CRL list, as provided by EDR, and dated 11/01/2018 has revealed that there are 7 OR CRL sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
METRO METALS NW INC Facility Status: Other remedial or investigative action recommended Facility Id: 1015	***5611 NE COLUMBIA BLV***	***SW 1/4 - 1/2 (0.307 mi.)***	***I53***	***529***
HERTZ EQUIPMENT RENT Facility Status: State Basic Preliminary Assessment recommended (PA) Facility Id: 1403	***4939 NE COLUMBIA BLV***	***WSW 1/2 - 1 (0.546 mi.)***	***81***	***689***
AIRCRAFT SERVICE INT Facility Status: SITE EVALUATION Facility Id: 1832	***(NEAR) 7000 NE AIRPO***	***NNE 1/2 - 1 (0.947 mi.)***	***S110***	***1080***
ALASKA AIRLINES Facility Status: OPERATION & MAINTENANCE Facility Id: 2118	***7000 NE AIRPORT WAY***	***NNE 1/2 - 1 (0.947 mi.)***	***S111***	***1092***

Lower Elevation	Address	Direction / Distance	Map ID	Page
SOIL CONTAMINATION - Facility Status: State Basic Preliminary Assessment recommended (PA) Facility Id: 1065	***5700 NE TRANSPORT WA***	***NNW 1/4 - 1/2 (0.363 mi.)***	***J56***	***575***
ODEQ STATE SUPERFUND Facility Status: No Further Action (Conditional) Facility Id: 88	***7039 NE 46TH AVE***	***W 1/2 - 1 (0.688 mi.)***	***P91***	***906***
AIRCRAFT SERVICE INT Facility Status: Site Investigation recommended (SI) Facility Id: 2240	***PORTLAND INTERNATION***	***NW 1/2 - 1 (0.758 mi.)***	***98***	***984***

EXECUTIVE SUMMARY

OR ECSI: The Environmental Cleanup Site Information System records information about sites in Oregon that may be of environmental interest. The data come from the Department of Environmental Quality.

A review of the OR ECSI list, as provided by EDR, and dated 01/01/2019 has revealed that there are 45 OR ECSI sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PORTLAND WILLAMETTE Investigation: No Further Action State ID Number: 976	***6800 NE 59TH PL***	***SSW 1/4 - 1/2 (0.250 mi.)***	***H48***	***472***
PORTLAND WILLAMETTE Investigation: Suspect State ID Number: 2767	6800 NE 59TH PL. (UP	SSW 1/4 - 1/2 (0.250 mi.)	H49	498
METRO METALS NW INC Investigation: Listed on the CRL/Inventory Investigation: Suspect State ID Number: 1015 State ID Number: 5455	***5611 NE COLUMBIA BLV***	***SW 1/4 - 1/2 (0.307 mi.)***	***I53***	***529***
ATLAS TOWING Investigation: Suspect State ID Number: 5903	***5327 NE COLUMBIA BLV***	***WSW 1/4 - 1/2 (0.425 mi.)***	***63***	***611***
SPARKS-WAGNER INC Investigation: Suspect State ID Number: 1225	***5601 NE COLUMBIA BLV***	***SW 1/4 - 1/2 (0.433 mi.)***	***64***	***614***
COLUMBIA WOODWORKING Investigation: Suspect State ID Number: 872	***6432 NE COLUMBIA BLV***	***S 1/4 - 1/2 (0.436 mi.)***	***L67***	***625***
SENTER TOOL SERVICE Investigation: Suspect State ID Number: 4581	***5413 NE COLUMBIA BLV***	***SW 1/4 - 1/2 (0.467 mi.)***	***N72***	***642***
MILLER PROPERTY Investigation: Suspect State ID Number: 1040	***5421 NE COLUMBIA BLV***	***SW 1/4 - 1/2 (0.467 mi.)***	***N73***	***644***
P&L ENTERPRISE Investigation: Suspect State ID Number: 5477	6750 NE COLUMBIA BLV	SSE 1/2 - 1 (0.523 mi.)	78	677
PARKROSE AUTO CENTER Investigation: Suspect State ID Number: 5770	5242 NE COLUMBIA BLV	SW 1/2 - 1 (0.523 mi.)	79	685
MARTINEZ AUTO REBUIL Investigation: Suspect State ID Number: 5690	5916 NE PORTLAND HWY	SSW 1/2 - 1 (0.529 mi.)	O80	687
HERTZ EQUIPMENT RENT Investigation: Listed on the CRL/Inventory State ID Number: 1403	***4939 NE COLUMBIA BLV***	***WSW 1/2 - 1 (0.546 mi.)***	***81***	***689***
FERNLEY TIRE FIRE Investigation: No Further Action State ID Number: 1181	***5411 NE PORTLAND HWY***	***SW 1/2 - 1 (0.557 mi.)***	***82***	***704***
HALTON CO Investigation: No Further Action	***6654 NE 47TH AVE***	***WSW 1/2 - 1 (0.572 mi.)***	***85***	***712***

State ID Number: 1503				
PARAMOUNT PEST CONTR	***5207 NE PORTLAND HWY***	***SW 1/2 - 1 (0.575 mi.)***	***87***	***740***
Investigation: No Further Action State ID Number: 1313				
FORKLIFT SERVICES OF	***7001 NE COLUMBIA BLV***	***SE 1/2 - 1 (0.594 mi.)***	***88***	***743***
Investigation: Suspect State ID Number: 4698				
AVIATION EXTERIORS	***4635 NE CORNFOOT DR***	***WNW 1/2 - 1 (0.654 mi.)***	***89***	***751***
Investigation: No Further Action State ID Number: 4930				
KUHNAU PROPERTY	***6915 NE 46TH AVE.***	***W 1/2 - 1 (0.701 mi.)***	***P94***	***950***
Investigation: No Further Action State ID Number: 5692				
AB FINISHING TECH	***6724 NE 46TH AVE.***	***WSW 1/2 - 1 (0.707 mi.)***	***95***	***954***
Investigation: No Further Action State ID Number: 871				
SEASTROM PROPERTY	***6640 NE PORTLAND HWY***	***SSE 1/2 - 1 (0.712 mi.)***	***96***	***967***
Investigation: Suspect State ID Number: 1480				
PIERCE PACIFIC MANUF	***6540 NE 42ND AVE.***	***WSW 1/2 - 1 (0.742 mi.)***	***Q97***	***975***
Investigation: No Further Action State ID Number: 1092				
OLYMPIC FOUNDRY INC.	***6530 NE 42ND AVE.***	***WSW 1/2 - 1 (0.766 mi.)***	***Q99***	***989***
Investigation: Suspect State ID Number: 4154				
HALTON COMPANY THE	***4421 NE COLUMBIA BLV***	***WSW 1/2 - 1 (0.808 mi.)***	***100***	***991***
Investigation: No Further Action State ID Number: 121				
KILLINGSWORTH FAST D	***NE 75TH AVE., BOUNDE***	***SE 1/2 - 1 (0.877 mi.)***	***101***	***1043***
Investigation: No Further Action State ID Number: 2251				
EUDALY BROS	***6920 NE 42ND AVE***	***W 1/2 - 1 (0.893 mi.)***	***R102***	***1055***
Investigation: No Further Action State ID Number: 4495				
CHIMNEY TEK/SPLINTER	3881 NE BRYANT ST	W 1/2 - 1 (0.910 mi.)	R104	1066
Investigation: Suspect State ID Number: 4159				
KENRICH PRODUCTS, IN	6853 NE 42ND AVE., B	W 1/2 - 1 (0.915 mi.)	R105	1067
Investigation: Suspect State ID Number: 4158				
AMERICAN STEEL PRODU	3885 NE BRYANT ST.	W 1/2 - 1 (0.915 mi.)	R106	1068
Investigation: Suspect State ID Number: 4156				
JOHN L. JERSEY AND S	***7015 NE 42ND AVE.***	***W 1/2 - 1 (0.915 mi.)***	***R107***	***1070***
Investigation: Suspect State ID Number: 4161				
DALE JERSEY PROPERTY	***6845 NE 42ND AVE***	***W 1/2 - 1 (0.918 mi.)***	***R108***	***1075***
Investigation: No Further Action State ID Number: 5733				
AIRCRAFT SERVICE INT	***(NEAR) 7000 NE AIRPO***	***NNE 1/2 - 1 (0.947 mi.)***	***S110***	***1080***

Investigation: Listed on the CRL/Inventory
State ID Number: 1832

ALASKA AIRLINES	***7000 NE AIRPORT WAY***	***NNE 1/2 - 1 (0.947 mi.)***	***S111***	***1092***
Investigation: No Further Action Investigation: Listed on the CRL/Inventory Investigation: Suspect State ID Number: 2118 State ID Number: 273 State ID Number: 4739				

Lower Elevation	Address	Direction / Distance	Map ID	Page
JACKSON READINESS CE Investigation: Suspect State ID Number: 6241	***6255 NE CORNFOOT RD***	***0 - 1/8 (0.000 mi.)***	***A22***	***184***
SOIL CONTAMINATION - Investigation: Listed on the CRL/Inventory State ID Number: 1065	***5700 NE TRANSPORT WA***	***NNW 1/4 - 1/2 (0.363 mi.)***	***J56***	***575***
COLWOOD NATIONAL GOL Investigation: No Further Action State ID Number: 5890	***7007 NE CORNFOOT RD.***	***E 1/4 - 1/2 (0.365 mi.)***	***57***	***580***
OREGON NATIONAL GUAR Investigation: Suspect State ID Number: 637	***SOUTHWEST PORTION OF***	***WNW 1/2 - 1 (0.520 mi.)***	***77***	***666***
PORTLAND INTERNATION Investigation: Suspect State ID Number: 5849	***PORTLAND INTERNATION***	***NNW 1/2 - 1 (0.562 mi.)***	***83***	***709***
PORTLAND GROUND RUN- Investigation: No Further Action State ID Number: 3519	***5909 NE MCGUIRE AVE.***	***NNW 1/2 - 1 (0.573 mi.)***	***86***	***733***
PORTLAND MAINTENANCE Investigation: No Further Action State ID Number: 2641	***7111 NE ALDERWOOD RD***	***E 1/2 - 1 (0.661 mi.)***	***90***	***865***
ODEQ STATE SUPERFUND Investigation: Listed on the CRL/Inventory State ID Number: 88	***7039 NE 46TH AVE***	***W 1/2 - 1 (0.688 mi.)***	***P91***	***906***
SOUTH CARGO RELOAD R Investigation: Suspect State ID Number: 5524	***PORTLAND INTERNATION***	***NNW 1/2 - 1 (0.696 mi.)***	***92***	***938***
MCBRIDE SLOUGH (M1-5 Investigation: Suspect State ID Number: 5676	***8000 BLOCK, NE ALDER***	***E 1/2 - 1 (0.698 mi.)***	***93***	***941***
AIRCRAFT SERVICE INT Investigation: Listed on the CRL/Inventory State ID Number: 2240	***PORTLAND INTERNATION***	***NW 1/2 - 1 (0.758 mi.)***	***98***	***984***
THOMSON EQUIPMENT CO Investigation: Suspect State ID Number: 4162	***7201 NE 42ND AVE***	***W 1/2 - 1 (0.908 mi.)***	***103***	***1058***
PORTLAND INT'L AIRPO Investigation: Suspect	***PORTLAND INTERNATION***	***NNW 1/2 - 1 (0.924 mi.)***	***109***	***1078***

State ID Number: 6038

State and tribal landfill and/or solid waste disposal site lists

OR SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Department of Environmental Quality's Closure & Regular Solid Waste Active Disposal Permits database.

A review of the OR SWF/LF list, as provided by EDR, and dated 01/14/2019 has revealed that there are 3 OR SWF/LF sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PORTLAND COMPOST FAC Permit Status: Terminated Facility Id: 105042	SEC18,T1N,R2E	SW 1/4 - 1/2 (0.302 mi.)	I51	521
OREGON FRESH FARMS, Permit Status: Terminated Facility Id: 112165	***6849 NE COLUMBIA BLV***	***SE 1/4 - 1/2 (0.442 mi.)***	***M70***	***632***

Lower Elevation	Address	Direction / Distance	Map ID	Page
WASTE MANAGEMENT OF Permit Status: Active Facility Id: 112037	***7227 NE 55TH AVE***	***W 1/4 - 1/2 (0.259 mi.)***	***50***	***521***

State and tribal leaking storage tank lists

OR LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Environmental Quality's LUST Database List.

A review of the OR LUST list, as provided by EDR, and dated 10/03/2018 has revealed that there are 23 OR LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NW TRANSPORT SERVICE Facility ID: 26-93-0088 Cleanup Complete: 07/31/1996	***6823 NE 59TH PL***	***SSW 1/8 - 1/4 (0.215 mi.)***	***F41***	***350***
NORTHSIDE FORD TRUCK Facility ID: 26-09-1264 Cleanup Complete: 02/24/2010	***6221 NORTHEAST COLUM***	***S 1/4 - 1/2 (0.386 mi.)***	***K59***	***584***
HARRISON PROPERTY Facility ID: 26-90-0372 Cleanup Complete: 01/23/1991	***6100 NE COLUMBIA BLV***	***S 1/4 - 1/2 (0.403 mi.)***	***K61***	***602***
SONSRAY MACHINERY LL Facility ID: 26-99-1306 Cleanup Complete: 11/20/2002	***6455 NE COLUMBIA BLV***	***S 1/4 - 1/2 (0.407 mi.)***	***L62***	***603***
SPARKS-WAGNER INC	***5601 NE COLUMBIA BLV***	***SW 1/4 - 1/2 (0.433 mi.)***	***64***	***614***

Facility ID: 26-92-0312 Cleanup Complete: 07/11/1996				
PORT OF PORTLAND - A Facility ID: 26-89-0100 Facility ID: 26-89-0120 Cleanup Complete: 05/31/1989 Cleanup Complete: 07/06/1989	***CORNFOOT RD & BONG S***	***E 1/4 - 1/2 (0.434 mi.)***	***65***	***623***
HEATING OIL TANK Facility ID: 26-16-0593	6849 NE COLUMBIA BLV	SE 1/4 - 1/2 (0.442 mi.)	M68	632
CMKB PROPERTIES LLC Facility ID: 26-16-0605 Cleanup Complete: 03/29/2017	***6849 NE COLUMBIA BLV***	***SE 1/4 - 1/2 (0.442 mi.)***	***M69***	***632***
OREGON FRESH FARMS, Facility ID: 26-11-0281 Cleanup Complete: 12/12/2011	***6849 NE COLUMBIA BLV***	***SE 1/4 - 1/2 (0.442 mi.)***	***M70***	***632***
MULTNOMAH CO SD 1 WH Facility ID: 26-09-0383 Cleanup Complete: 08/19/2009	***5135 NE COLUMBIA***	***WSW 1/4 - 1/2 (0.463 mi.)***	***71***	***636***
SENTER TOOL SERVICE Facility ID: 26-99-0106 Cleanup Complete: 05/21/2002	***5413 NE COLUMBIA BLV***	***SW 1/4 - 1/2 (0.467 mi.)***	***N72***	***642***
TRAIL EQUIPMENT COMP Facility ID: 26-97-0238 Cleanup Complete: 05/19/1997	***5440 NE COLUMBIA BLV***	***SW 1/4 - 1/2 (0.476 mi.)***	***N74***	***649***
HAMILTON ENGINE SALE Facility ID: 26-90-0217 Cleanup Complete: 06/30/1990	***5540 NE COLUMBIA BLV***	***SW 1/4 - 1/2 (0.481 mi.)***	***75***	***653***
POWELL DISTRIBUTING Facility ID: 26-90-0263 Cleanup Complete: 06/13/1996	***6021 NE PORTLAND HWY***	***S 1/4 - 1/2 (0.497 mi.)***	***O76***	***666***

Lower Elevation	**Address**	**Direction / Distance**	**Map ID**	**Page**
HEATING OIL TANK Facility ID: 26-88-0088 Cleanup Complete: 01/18/1989	CORNFOOT RD / BONG S	0 - 1/8 (0.000 mi.)	23	186
JACKSON ARMORY Facility ID: 26-01-6909 Cleanup Complete: 11/28/2001	***6255 NE CORNFOOT DR***	***0 - 1/8 (0.000 mi.)***	***A24***	***186***
MILLER BRANDS INC Facility ID: 26-90-0451 Facility ID: 26-93-0189 Cleanup Complete: 11/27/1991 Cleanup Complete: 04/19/1994	***5825 NE SKYPORT WAY***	***WSW 0 - 1/8 (0.048 mi.)***	***B26***	***212***
HEATING OIL TANK Facility ID: 26-15-0172 Cleanup Complete: 12/16/2015	6135 NE BRYANT ST	SSW 0 - 1/8 (0.059 mi.)	C27	223
HEATING OIL TANK Facility ID: 26-12-1027 Cleanup Complete: 02/06/2013	6110 NE BRYANT	SSW 0 - 1/8 (0.089 mi.)	C28	223
HEATING OIL TANK	5920 NE BRYANT ST	SW 0 - 1/8 (0.107 mi.)	30	243

Facility ID: 26-17-0583 Cleanup Complete: 09/12/2017				
HEATING OIL TANK Facility ID: 26-00-0207 Cleanup Complete: 05/31/2000	6801 NE 63RD AVE	S 1/8 - 1/4 (0.138 mi.)	35	338
WASTE MANAGEMENT OF Facility ID: 26-97-0700 Cleanup Complete: 04/21/2008	***5330 NE SKYPORT WAY***	***W 1/4 - 1/2 (0.312 mi.)***	***54***	***560***
HEATING OIL TANK Facility ID: 26-99-0232	5580 NE TRANPORT WAY	NW 1/4 - 1/2 (0.372 mi.)	J58	584

State and tribal registered storage tank lists

OR UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Quality's UST List on Disk.

A review of the OR UST list, as provided by EDR, and dated 10/03/2018 has revealed that there are 7 OR UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NW TRANSPORT SERVICE Facility ID: 3439	***6823 NE 59TH PL***	***SSW 1/8 - 1/4 (0.215 mi.)***	***F41***	***350***

Lower Elevation	Address	Direction / Distance	Map ID	Page
JACKSON ARMORY Facility ID: 597	***6255 NE CORNFOOT DR***	***0 - 1/8 (0.000 mi.)***	***A24***	***186***
MILLER BRANDS INC Facility ID: 7097	***5825 NE SKYPORT WAY***	***WSW 0 - 1/8 (0.048 mi.)***	***B26***	***212***
BLOCK BUSINESS FORMS Facility ID: 4986	5812 NE SKYPORT WAY	WSW 0 - 1/8 (0.110 mi.)	D31	243
KYSOR PANEL SYSTEMS Facility ID: 7527	***7320 NE 55TH AVE***	***W 1/8 - 1/4 (0.159 mi.)***	***E38***	***345***
TNT UNITED TRUCKLINE Facility ID: 7310	6829 NE 59TH PL	SW 1/8 - 1/4 (0.188 mi.)	40	349
PORTLAND INTERNATION Facility ID: 9423	5555 NE CORNFOOT RD	W 1/8 - 1/4 (0.237 mi.)	G45	356

OR AST: The Aboveground Storage Tank database contains registered ASTs. The data comes from the list of ASTs reported to the Office of State Fire Marshal.

A review of the OR AST list, as provided by EDR, and dated 01/17/2019 has revealed that there are 3 OR AST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
MILLER BRANDS INC	***5825 NE SKYPORT WAY***	***WSW 0 - 1/8 (0.048 mi.)***	***B26***	***212***

Facility Id: 024886

SAPA PROFILES INC	***7320 NE 55TH AVE***	***W 1/8 - 1/4 (0.159 mi.)***	***E37***	***339***
Facility Id: 062246				
SAPA PROFILES INC	***5325 NE SKYPORT WAY***	***W 1/8 - 1/4 (0.243 mi.)***	***G46***	***357***
Facility Id: 019564				

State and tribal voluntary cleanup sites

OR VCP: Responsible parties have entered into an agreement with DEQ to voluntarily address contamination associated with their property.

A review of the OR VCP list, as provided by EDR, and dated 12/31/2018 has revealed that there are 4 OR VCP sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
METRO METALS NW INC	***5611 NE COLUMBIA BLV***	***SW 1/4 - 1/2 (0.307 mi.)***	***I53***	***529***
ECS Site ID: 5455				
ATLAS TOWING	***5327 NE COLUMBIA BLV***	***WSW 1/4 - 1/2 (0.425 mi.)***	***63***	***611***
ECS Site ID: 5903				

Lower Elevation	Address	Direction / Distance	Map ID	Page
JACKSON READINESS CE	***6255 NE CORNFOOT RD***	***0 - 1/8 (0.000 mi.)***	***A22***	***184***
ECS Site ID: 6241				
COLWOOD NATIONAL GOL	***7007 NE CORNFOOT RD.***	***E 1/4 - 1/2 (0.365 mi.)***	***57***	***580***
ECS Site ID: 5890				

State and tribal Brownfields sites

Brownfields investigations and/or cleanups that have been conducted in Oregon.

A review of the OR BROWNFIELDS list, as provided by EDR, and dated 11/01/2018 has revealed that there is 1 OR BROWNFIELDS site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
COLWOOD NATIONAL GOL	***7007 NE CORNFOOT RD.***	***E 1/4 - 1/2 (0.365 mi.)***	***57***	***580***
Status: NO FURTHER STATE ACTION REQUIRED				
envid: 5890				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

WA SWRCY: A llisting of recycling center locations.

A review of the WA SWRCY list, as provided by EDR, and dated 10/25/2018 has revealed that there are 2

WA SWRCY sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
METRO METALS NORTHWE	5611 NE COLUMBIA BLV	SW 1/4 - 1/2 (0.307 mi.)	I52	522
TOTAL RECLAIM	6427 NE 59TH PL	SSW 1/4 - 1/2 (0.336 mi.)	55	560

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/01/2018 has revealed that there are 7 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
INK COMPANY THE EPA ID:: ORD987174414	***6705 NE 59TH PL***	***SSW 1/8 - 1/4 (0.184 mi.)***	***F39***	***347***
CLARKE AMERICAN EPA ID:: ORD987184959	***6623 NE 59TH PL***	***SSW 1/8 - 1/4 (0.228 mi.)***	***F43***	***352***

Lower Elevation	Address	Direction / Distance	Map ID	Page
PACIFIC TRUCK COLORS EPA ID:: ORD055974182	5536 NE SKYPORT WAY	WSW 1/8 - 1/4 (0.131 mi.)	D32	244
ROADMASTER INC EPA ID:: ORD987173267	***5602 NE SKYPORT WAY***	***WSW 1/8 - 1/4 (0.131 mi.)***	***D33***	***245***
SAPA PROFILES EPA ID:: ORSTATE09275	7320 NE 55TH AVE	W 1/8 - 1/4 (0.159 mi.)	E36	338
KYSOR PANEL SYSTEMS EPA ID:: ORD009054115	***7320 NE 55TH AVE***	***W 1/8 - 1/4 (0.159 mi.)***	***E38***	***345***
VININGS INDUSTRIES I EPA ID:: ORQ000009498	***7325 NE 55TH AVE***	***W 1/8 - 1/4 (0.234 mi.)***	***G44***	***354***

FUDS: The Listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

A review of the FUDS list, as provided by EDR, and dated 01/31/2015 has revealed that there is 1 FUDS site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
PORTLAND AIR BASE Federal Facility ID:: OR9799F0342 INST ID:: 56622		NNE 1/2 - 1 (0.569 mi.)	84	710

EXECUTIVE SUMMARY

OR MANIFEST: Hazardous waste manifest information.

A review of the OR MANIFEST list, as provided by EDR, and dated 12/31/2017 has revealed that there are 4 OR MANIFEST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
SILVER EAGLE MANUFAC	***5825 NE SKYPORT WAY***	***WSW 0 - 1/8 (0.048 mi.)***	***B25***	***187***
Status: SQG Status: CEG Status: Small quantity generator Status: Conditionally exempt generator EPA Id: ORQ000004770				
BLOCK GRAPHICS INC	***5822 NE SKYPORT WAY***	***SW 0 - 1/8 (0.103 mi.)***	***29***	***224***
Status: SQG Status: CEG Status: Small quantity generator Status: Conditionally exempt generator EPA Id: ORD096240569				
SHERWIN WILLIAMS CO	***5640 NE SKYPORT WAY***	***WSW 1/8 - 1/4 (0.133 mi.)***	***D34***	***247***
Status: LQG Status: Large quantity generator EPA Id: ORD000602490				
SAPA INC - COATINGS	***5325 NE SKYPORT WAY***	***W 1/8 - 1/4 (0.243 mi.)***	***G47***	***377***
Status: LQG Status: Large quantity generator EPA Id: ORD982656076				

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 3 records.

Site Name	Database(s)
COLUMBIA SLOUGH	OR CRL, OR ECSI, OR ENG CONTROLS
ODOT - PORTLAND HARBOR SOURCE CONT	OR ECSI, OR VCP
V.A.- COLUMBIA SOUTH SHORE WELLFIE	OR ECSI

OVERVIEW MAP - 5621379.2S

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: PANG Base Enclave	CLIENT: AECOM
ADDRESS: 6801 NE Cornfoot Rd Portland OR 97218	CONTACT: Brittany Kirchmann INQUIRY #: 5621379.2s
LAT/LONG: 45.57553 / 122.59845	DATE: April 15, 2019 12:01 pm

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DETAIL MAP - 5621379.2S

0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: PANG Base Enclave	CLIENT: AECOM
ADDRESS: 6801 NE Cornfoot Rd Portland OR 97218	CONTACT: Brittany Kirchmann INQUIRY #: 5621379.2s
LAT/LONG: 45.57553 / 122.59845	DATE: April 15, 2019 12:04 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500	1	0	0	0	NR	NR	1
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		1	0	2	NR	NR	3
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250	1	0	2	NR	NR	NR	3
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		2	1	NR	NR	NR	3
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP	2	NR	NR	NR	NR	NR	2
State- and tribal - equivalent CERCLIS								
OR CRL	1.000	1	0	0	2	5	NR	8
OR ECSI	1.000	1	1	0	10	34	NR	46
State and tribal landfill and/or solid waste disposal site lists								
OR SWF/LF	0.500	1	0	0	3	NR	NR	4
State and tribal leaking storage tank lists								
OR LUST	0.500	2	6	2	15	NR	NR	25
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
OR UST	0.250	1	3	4	NR	NR	NR	8
OR AST	0.250	1	1	2	NR	NR	NR	4
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
OR ENG CONTROLS	0.500		0	0	0	NR	NR	0
OR INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
OR VCP	0.500	1	1	0	3	NR	NR	5
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
OR BROWNFIELDS	0.500		0	0	1	NR	NR	1
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
OR SWRCY	0.500		0	0	0	NR	NR	0
OR HIST LF	0.500		0	0	0	NR	NR	0
WA SWRCY	0.500		0	0	2	NR	NR	2
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
OR AOCONCERN	1.000		0	0	0	0	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
OR CDL	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
OR SPILLS	TP	2	NR	NR	NR	NR	NR	2
OR HAZMAT	TP	2	NR	NR	NR	NR	NR	2
OR SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	7	NR	NR	NR	7
FUDS	1.000		0	0	0	1	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP	1	NR	NR	NR	NR	NR	1
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP	1	NR	NR	NR	NR	NR	1
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	2	NR	NR	NR	NR	NR	2
ECHO	TP	2	NR	NR	NR	NR	NR	2
DOCKET HWC	TP	1	NR	NR	NR	NR	NR	1
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
OR AIRS	TP	1	NR	NR	NR	NR	NR	1
OR COAL ASH	0.500		0	0	0	NR	NR	0
OR DRYCLEANERS	0.250		0	0	NR	NR	NR	0
OR Enforcement	TP		NR	NR	NR	NR	NR	0
OR Financial Assurance	TP		NR	NR	NR	NR	NR	0
CA HAZNET	TP		NR	NR	NR	NR	NR	0
OR HSIS	TP	1	NR	NR	NR	NR	NR	1
OR MANIFEST	0.250	1	2	2	NR	NR	NR	5
OR NPDES	TP	1	NR	NR	NR	NR	NR	1
OR UIC	TP	1	NR	NR	NR	NR	NR	1

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
OR RGA HWS	TP	3	NR	NR	NR	NR	NR	3
OR RGA LF	TP		NR	NR	NR	NR	NR	0
OR RGA LUST	TP	5	NR	NR	NR	NR	NR	5
- Totals --		36	17	20	38	40	0	151

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **HEATING OIL TANK** **OR RGA LUST** **S115395116**
Target Property **6801 NE CORNFOOT ROAD-ANG BASE** **N/A**
PORTLAND, OR

Site 1 of 23 in cluster A

Actual: 22 ft.

RGA LUST:

2012	HEATING OIL TANK	6801 NE CORNFOOT ROAD-ANG BASE

A2 **ERNS** **2017170583**
Target Property **6801 NORTH EAST CORNFOOT RD** **N/A**
PORTLAND, OR 97218

Site 2 of 23 in cluster A

Actual: 22 ft.

Incident Commons:

NRC Report #:	1170583
Description of Incident:	MINERAL OIL DISCHARGED FROM A NON-PCB LABELED TRANSFORMER DUE TO AN ACCIDENTAL COLLISION.
Type of Incident:	FIXED
Incident Cause:	OPERATOR ERROR
Incident Date Time:	2017-02-06 14:00:00
Incident DTG:	DISCOVERED
Incident Location:	BUILDING 140
Loaction Address:	6801 NORTH EAST CORNFOOT RD
Location Street 1:	Not reported
Location Street 2:	Not reported
Location Nearest City:	PORTLAND
Location State:	OR
Location County:	MULTNOMAH
Location Zip:	97218
Distance From City:	Not reported
Distance Units:	Not reported
Direction From City:	Not reported
Lat Deg:	Not reported
Lat Min:	Not reported
Lat Sec:	Not reported
Lat Quad:	Not reported
Long Deg:	Not reported
Long Min:	Not reported
Long Sec:	Not reported
Long Quad:	Not reported
Location Section:	Not reported
Location Township:	Not reported
Location range:	Not reported
Potential Range:	N

Incidents:

NRC Report #:	1170583
Aircraft Type:	Not reported
Aircraft Model:	Not reported
Aircraft ID:	Not reported
Aircraft Fuel Capacity:	Not reported
Aircraft Fuel Capacity Units:	Not reported
Aircraft Fuel on Board:	Not reported
Aircraft Fuel on Board Units:	Not reported
Aircraft Spot Number:	Not reported
Aircraft Hanger:	Not reported
Aircraft Runway Number:	Not reported
Road Mile Marker:	Not reported

(Continued) **2017170583**

Building ID:	Not reported
Type of Fixed Object:	TRANSFORMER
Power Generating Facility:	U
Generating Capacity:	Not reported
Type of Fuel:	Not reported
NPDES:	Not reported
NPDES Compliance:	U
Pipeline Type:	Not reported
DOT Regulated:	U
Pipeline Above Ground:	ABOVE
Exposed Underwater:	N
Pipeline Covered:	U
Railroad Hotline:	Not reported
Grade Crossing:	U
Location Subdivision:	Not reported
Railroad Milepost:	Not reported
Type Vehicle Involved:	Not reported
Crossing Device Type:	Not reported
Device Operational:	U
DOT Crossing Number:	Not reported
Brake Failure:	U
Description of Tank:	Not reported
Tank Above Ground:	ABOVE
Transportable Container:	U
Tank Regulated:	U
Tank Regulated By:	Not reported
Tank ID:	Not reported
Capacity of Tank:	Not reported
Capacity of Tank Units:	Not reported
Actual Amount:	Not reported
Actual Amount Units:	Not reported
Platform Rig Name:	Not reported
Platform Letter:	Not reported
Location Area ID:	Not reported
Location Block ID:	Not reported
OCSG Number:	Not reported
OCSP Number:	Not reported
State Lease Number:	Not reported
Pier Dock Number:	Not reported
Berth Slip Number:	Not reported
Continuous Release Type:	Not reported
Initial Continuous Release No:	Not reported
Continuous Release Permit:	Not reported
Allision:	U
Type of Structure:	Not reported
Structure Name:	Not reported
Structure Operational:	U
Airbag Deployed:	U
Date Tiem Normal Service:	Not reported
Service Disruption Time:	Not reported
Service Disruption Units:	Not reported
Transit Bus Flag:	Not reported
CR Begin Date:	Not reported
CR End Date:	Not reported
CR Change Date:	Not reported
FBI Contact:	Not reported
FBI Contact Date Time:	Not reported

(Continued) **2017170583**

Sub Part C Testing Req:	XXX
Conductor Testing:	Not reported
Engineer Testing:	Not reported
Trainman Testing:	Not reported
Yard Foreman Testing:	Not reported
RCL Operator Testing:	Not reported
Brakeman Testing:	Not reported
Train Dispatcher Testing:	Not reported
Signalman Testing:	Not reported
Other Employee Testing:	Not reported
Unknown Testing:	Not reported
Passenger Handling:	Not reported
Passenger Route:	XXX
Passenger Delay:	XXX

Incident Details:

NRC Report #:	1170583
Fire Involved:	N
Fire Extinguished:	U
Any Evacuations:	N
Number Evacuated:	Not reported
Who Evacuated:	Not reported
Radius of Evacuation:	Not reported
Any Injuries:	N
Number Injured:	Not reported
Number Hospitalized:	Not reported
Any Fatalities:	N
Number Fatalities:	Not reported
Any Damages:	N
Damage Amount:	Not reported
Air Corridor Closed:	N
Air Corridor Desc:	Not reported
Air Closure Time:	Not reported
Waterway Closed:	N
Waterway Desc:	Not reported
Waterway Closure Time:	Not reported
Road Closed:	N
Road Desc:	Not reported
Road Closure Time:	Not reported
Closure Direction:	Not reported
Major Artery:	N
Track Closed:	N
Track Desc:	Not reported
Track Closure Time:	Not reported
Media Interest:	UNKNOWN
Medium Desc:	WATER
Additional Medium Info:	DITCH'S ON THE PROPERTY
Body of Water:	DITCH'S ON THE PROPERTY
Tributary of:	Not reported
Release Secured:	Y
Estimated Duration of Release:	Not reported
Release rate:	Not reported
Desc Remedial Action:	ABSORBENTS WERE APPLIED.
State Agency on Scene:	Not reported
State Agency Report Number:	Not reported
Other Agency Notified:	Not reported
Weather Conditions:	Not reported

(Continued) **2017170583**

Air Temperature:	Not reported
Wind Speed:	Not reported
Wind Direction:	Not reported
Water Supply Contaminated:	U
Sheen Size:	Not reported
Sheen Color:	Not reported
Direction of Sheen Travel:	Not reported
Sheen Odor Description:	Not reported
Wave Condition:	Not reported
Current Speed:	Not reported
Current Direction:	Not reported
Water Temperature:	Not reported
Track Close Dir:	Not reported
Empl Fatality:	Not reported
Pass Fatality:	Not reported
Community Impact:	Not reported
Wind Speed Unit:	Not reported
Employee Injuries:	Not reported
Passenger Injuries:	Not reported
Occupant Fatality:	Not reported
Current Speed Unit:	Not reported
Road Closure Units:	Not reported
Track CLosure Units:	Not reported
Sheen Size Units:	Not reported
Additional Info:	Not reported
State Agency Notified:	DEQ
Federal Agency Notified:	Not reported
nearest River Mile Marker:	Not reported
Sheen Size Length:	Not reported
Sheen Size Length Units:	Not reported
Sheen Size Width:	Not reported
Sheen Size Width Units:	Not reported
Offshore:	N
Duration Unit:	Not reported
Release Rate Unit:	Not reported
Release Rate Rate:	Not reported
Passengers Transferred:	NO

Calls:

NRC Report #:	1170583
Site ID:	20171170583
Date Time Received:	2017-02-08 16:15:14
Date Time Complete:	2017-02-08 16:18:44
Call Type:	INC
Responsible Company:	OREGON AIR NATIONAL GUARD
Responsible Org Type:	MILITARY
Responsible City:	PORTLAND
Responsible State:	OR
Responsible Zip:	97218
On Behalf:	Not reported
Source:	TELEPHONE

Material Involved:

NRC Report #:	1170583
Chris Code:	OMN
Case Number:	000000-00-0

(Continued) **2017170583**

UN Number:	Not reported
Amount of Material:	141
Unit of Measure:	GALLON(S)
Name of Material:	OIL, MISC: MINERAL
If Reached Water:	YES
Amount in Water:	141
Unit of Measure Reach Water:	GALLON(S)

A3 **USAF ANG PORTLAND** **OR MANIFEST** **1000226631**
Target **142 FIG/EM 6801 NE CORNFOOT RD** **N/A**
Property **PORTLAND, OR 97218**

Site 3 of 23 in cluster A

Actual:
22 ft.

OR MANIFEST:

Manifest Year:	Manifest Year - 2017
EPA Id:	OR1570024264
Inactive Status:	Not reported
Organization Name:	Not reported
Contact Name:	Roger Rein
Contact Telephone Number:	Not reported
Mailing Address:	6801 NE Cornfoot Road
Mailing City/State/Zip:	Portland, OR 97218-2797

Manifest:

Year :	2017
RCRA Id :	OR1570024264
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	007597057FLE
Ship Date :	05/08/2017
TSD :	UTD981552177
WS Num:	1
Transporter:	Not reported
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H040
EPA Waste Codes:	D001
Waste Description:	Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1:	157.818
Total Amt Of Waste Stream Generated in Reporting Yr 2:	2.721

Year :	2017
RCRA Id :	OR1570024264
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	010489267FLE
Ship Date :	04/19/2017
TSD :	UTD981552177
WS Num:	1
Transporter:	Not reported
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H040
EPA Waste Codes:	D001
Waste Description:	Miscellaneous Flammable Aerosol LABP

USAF ANG PORTLAND (Continued) **1000226631**

Total Amt Of Waste Stream Generated in Reporting Yr 1: 157.818
Total Amt Of Waste Stream Generated in Reporting Yr 2: 45.35

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010613127FLE
Ship Date : 08/02/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 157.818
Total Amt Of Waste Stream Generated in Reporting Yr 2: 50.792

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 011143875FLE
Ship Date : 12/05/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 157.818
Total Amt Of Waste Stream Generated in Reporting Yr 2: 58.955

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007597057FLE
Ship Date : 05/08/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 157.818
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2.721

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Status: Large quantity generator
Manifest : 010489267FLE
Ship Date : 04/19/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 157.818
Total Amt Of Waste Stream Generated in Reporting Yr 2: 45.35

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010613127FLE
Ship Date : 08/02/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 157.818
Total Amt Of Waste Stream Generated in Reporting Yr 2: 50.792

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 011143875FLE
Ship Date : 12/05/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 157.818
Total Amt Of Waste Stream Generated in Reporting Yr 2: 58.955

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009932815FLE
Ship Date : 02/24/2017
TSD : WAD981769110
WS Num: 2
Transporter: Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 206.3425

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010489270FLE
Ship Date : 04/19/2017
TSD : WAD981769110
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 70.746

Click this hyperlink while viewing on your computer to access
1420 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010612944FLE
Ship Date : 06/06/2017
TSD : WAD981769110
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 216.773

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010613126FLE
Ship Date : 08/02/2017
TSD : WAD981769110
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040

USAF ANG PORTLAND (Continued) **1000226631**

EPA Waste Codes: D005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 62.583

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010620197FLE
Ship Date : 09/26/2017
TSD : UTD981552177
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 97.956

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009932815FLE
Ship Date : 02/24/2017
TSD : WAD981769110
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 206.3425

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010489270FLE
Ship Date : 04/19/2017
TSD : WAD981769110
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 70.746

Year : 2017

USAF ANG PORTLAND (Continued) **1000226631**

RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010612944FLE
Ship Date : 06/06/2017
TSD : WAD981769110
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 216.773

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010613126FLE
Ship Date : 08/02/2017
TSD : WAD981769110
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D006
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 62.583

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010620197FLE
Ship Date : 09/26/2017
TSD : UTD981552177
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D006
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 97.956

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009932815FLE
Ship Date : 02/24/2017
TSD : WAD981769110

USAF ANG PORTLAND (Continued) **1000226631**

WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 206.3425

Year : 2017
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 010489270FLE
Ship Date : 04/19/2017
TSD : WAD981769110
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 654.4005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 70.746

Manifest:
Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 008281594FLE
Ship Date : 03/15/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 80.2695

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009105970FLE
Ship Date : 06/01/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 61.676

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009106179FLE
Ship Date : 07/27/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 70.2925

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009106310FLE
Ship Date : 09/21/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 56.234

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009107722FLE
Ship Date : 12/14/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 28.117

USAF ANG PORTLAND (Continued) **1000226631**

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 008281594FLE
Ship Date : 03/15/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 80.2695

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009105970FLE
Ship Date : 06/01/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 61.676

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009106179FLE
Ship Date : 07/27/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D006
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 70.2925

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009106310FLE
Ship Date : 09/21/2016

USAF ANG PORTLAND (Continued) **1000226631**

TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D006
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 56.234

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009107722FLE
Ship Date : 12/14/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D006
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 28.117

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1420 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 008281594FLE
Ship Date : 03/15/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 80.2695

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009105970FLE
Ship Date : 06/01/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 61.676

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009106179FLE
Ship Date : 07/27/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D007
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 70.2925

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009106310FLE
Ship Date : 09/21/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D007
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 56.234

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009107722FLE
Ship Date : 12/14/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D007
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589

USAF ANG PORTLAND (Continued) **1000226631**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 28.117

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 008281594FLE
Ship Date : 03/15/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D008
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 80.2695

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009105970FLE
Ship Date : 06/01/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D008
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 61.676

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009106179FLE
Ship Date : 07/27/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D008
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 70.2925

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator

USAF ANG PORTLAND (Continued) **1000226631**

Manifest : 009106310FLE
Ship Date : 09/21/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D008
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 56.234

Year : 2016
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 009107722FLE
Ship Date : 12/14/2016
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D008
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 296.589
Total Amt Of Waste Stream Generated in Reporting Yr 2: 28.117

Manifest:
Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006762546FLE
Ship Date : 05/18/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 139.2245

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765574FLE
Ship Date : 02/17/2015
TSD : WAD981769110

USAF ANG PORTLAND (Continued) **1000226631**

WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 94.7815

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007597425FLE
Ship Date : 07/30/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 56.234

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 008283267FLE
Ship Date : 12/15/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 52.1525

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006762546FLE
Ship Date : 05/18/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006

USAF ANG PORTLAND (Continued) **1000226631**

Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 139.2245

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765574FLE
Ship Date : 02/17/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 94.7815

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007597425FLE
Ship Date : 07/30/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 56.234

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 008283267FLE
Ship Date : 12/15/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 52.1525

Year : 2015
RCRA Id : OR1570024264

USAF ANG PORTLAND (Continued) **1000226631**

Inactive : Not reported
Status: Large quantity generator
Manifest : 006762546FLE
Ship Date : 05/18/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 139.2245

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765574FLE
Ship Date : 02/17/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 94.7815

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Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007597425FLE
Ship Date : 07/30/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 56.234

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 008283267FLE

USAF ANG PORTLAND (Continued) **1000226631**

Ship Date : 12/15/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 52.1525

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006762546FLE
Ship Date : 05/18/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D008
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 139.2245

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765574FLE
Ship Date : 02/17/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D008
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 94.7815

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007597425FLE
Ship Date : 07/30/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Off Mng : H050
EPA Waste Codes: D008
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 56.234

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 008283267FLE
Ship Date : 12/15/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D008
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 52.1525

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006762546FLE
Ship Date : 05/18/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 139.2245

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765574FLE
Ship Date : 02/17/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 94.7815

USAF ANG PORTLAND (Continued) **1000226631**

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007597425FLE
Ship Date : 07/30/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 56.234

Year : 2015
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 008283267FLE
Ship Date : 12/15/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 342.3925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 52.1525

Manifest:
Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007598466FLE
Ship Date : 03/07/2014
TSD : WAD991281767
WS Num: 7
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Waste Compressed Gases
Total Amt Of Waste Stream Generated in Reporting Yr 1: 65.304000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 27.210000000000001

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Status: Large quantity generator
Manifest : 007595897FLE
Ship Date : 05/19/2014
TSD : WAD991281767
WS Num: 7
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Waste Compressed Gases
Total Amt Of Waste Stream Generated in Reporting Yr 1: 65.304000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 0.90700000000000003

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765217FLE
Ship Date : 12/04/2014
TSD : WAD991281767
WS Num: 7
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Waste Compressed Gases
Total Amt Of Waste Stream Generated in Reporting Yr 1: 65.304000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 37.186999999999998

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007598466FLE
Ship Date : 03/07/2014
TSD : WAD991281767
WS Num: 16
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D004 D005 D006 D007 D008
Waste Description: Weapons Cleaning Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 103.8515
Total Amt Of Waste Stream Generated in Reporting Yr 2: 103.8515

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765217FLE
Ship Date : 12/04/2014
TSD : WAD991281767
WS Num: 25
Transporter: WAD058364647

USAF ANG PORTLAND (Continued) **1000226631**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Cleaner, Lubricant, Preservative
Total Amt Of Waste Stream Generated in Reporting Yr 1: 0.90700000000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 0.90700000000000003

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765321FLE
Ship Date : 12/18/2014
TSD : WAD991281767
WS Num: 32
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006 D007 D008
Waste Description: Sludge from Aqueous Parts Cleaners
Total Amt Of Waste Stream Generated in Reporting Yr 1: 66.210999999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 66.210999999999999

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007598467FLE
Ship Date : 03/07/2014
TSD : WAD981769110
WS Num: 6
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 245.797
Total Amt Of Waste Stream Generated in Reporting Yr 2: 55.780500000000004

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007595896FLE
Ship Date : 05/19/2014
TSD : WAD981769110
WS Num: 6
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 245.797

USAF ANG PORTLAND (Continued) **1000226631**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 85.711500000000001

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006764718FLE
Ship Date : 08/05/2014
TSD : WAD981769110
WS Num: 6
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 245.797
Total Amt Of Waste Stream Generated in Reporting Yr 2: 85.711500000000001

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006767448FLE
Ship Date : 10/29/2014
TSD : WAD981769110
WS Num: 6
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 245.797
Total Amt Of Waste Stream Generated in Reporting Yr 2: 18.593499999999999

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Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007598477FLE
Ship Date : 03/07/2014
TSD : WAD991281767
WS Num: 8
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Floor Sweepings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67.5715
Total Amt Of Waste Stream Generated in Reporting Yr 2: 35.372999999999998

Year : 2014

USAF ANG PORTLAND (Continued) **1000226631**

RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006767460FLE
Ship Date : 10/29/2014
TSD : WAD991281767
WS Num: 8
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D006
Waste Description: Floor Sweepings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67.5715
Total Amt Of Waste Stream Generated in Reporting Yr 2: 32.198500000000003

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765217FLE
Ship Date : 12/04/2014
TSD : WAD991281767
WS Num: 27
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H070
EPA Waste Codes: D001 D002
Waste Description: Oxidizing Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 0.45350000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 0.45350000000000001

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224738FLE
Ship Date : 01/24/2014
TSD : WAD991281767
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D008 D009
Waste Description: Broken Mercury Lamps
Total Amt Of Waste Stream Generated in Reporting Yr 1: 571.40999999999997
Total Amt Of Waste Stream Generated in Reporting Yr 2: 317.44999999999999

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006764717FLE
Ship Date : 08/05/2014
TSD : WAD991281767

USAF ANG PORTLAND (Continued) **1000226631**

WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H010
EPA Waste Codes: D005 D008 D009
Waste Description: Broken Mercury Lamps
Total Amt Of Waste Stream Generated in Reporting Yr 1: 571.40999999999997
Total Amt Of Waste Stream Generated in Reporting Yr 2: 104.30500000000001

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765023FLE
Ship Date : 09/17/2014
TSD : WAD991281767
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H010
EPA Waste Codes: D005 D008 D009
Waste Description: Broken Mercury Lamps
Total Amt Of Waste Stream Generated in Reporting Yr 1: 571.40999999999997
Total Amt Of Waste Stream Generated in Reporting Yr 2: 100.2235

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765417FLE
Ship Date : 12/31/2014
TSD : WAD991281767
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H010
EPA Waste Codes: D005 D008 D009
Waste Description: Broken Mercury Lamps
Total Amt Of Waste Stream Generated in Reporting Yr 1: 571.40999999999997
Total Amt Of Waste Stream Generated in Reporting Yr 2: 49.4315

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007598466FLE
Ship Date : 03/07/2014
TSD : WAD991281767
WS Num: 17
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006

USAF ANG PORTLAND (Continued) **1000226631**

Waste Description: Magnetic Inspection Fluid
Total Amt Of Waste Stream Generated in Reporting Yr 1: 85.711500000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 85.711500000000001

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007598467FLE
Ship Date : 03/07/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 497.94299999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 70.292500000000004

Year : 2014
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007595896FLE
Ship Date : 05/19/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 497.94299999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 179.13249999999999

Manifest:
Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224979FLE
Ship Date : 09/05/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 446.69749999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 151.0155

USAF ANG PORTLAND (Continued) **1000226631**

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224395FLE
Ship Date : 12/11/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 446.69749999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 191.37700000000001

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005220562FLE
Ship Date : 06/05/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 446.69749999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 71.1995

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005219270FLE
Ship Date : 03/14/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 446.69749999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 33.105499999999999

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005220562FLE
Ship Date : 06/05/2013

USAF ANG PORTLAND (Continued) **1000226631**

TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D008 D035
Waste Description: Miscellaneous Flammable Liquids - Labpack
Total Amt Of Waste Stream Generated in Reporting Yr 1: 78.909000000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 68.025000000000006

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224395FLE
Ship Date : 12/11/2013
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D008 D035
Waste Description: Miscellaneous Flammable Liquids - Labpack
Total Amt Of Waste Stream Generated in Reporting Yr 1: 78.909000000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1.8140000000000001

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224979FLE
Ship Date : 09/05/2013
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D008 D035
Waste Description: Miscellaneous Flammable Liquids - Labpack
Total Amt Of Waste Stream Generated in Reporting Yr 1: 78.909000000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 9.0700000000000003

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224395FLE
Ship Date : 12/11/2013
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050

USAF ANG PORTLAND (Continued) **1000226631**

EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: 317.90350000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 163.71350000000001

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005219270FLE
Ship Date : 03/14/2013
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: 317.90350000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 90.700000000000003

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005220562FLE
Ship Date : 06/05/2013
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: 317.90350000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 63.490000000000002

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Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224395FLE
Ship Date : 12/11/2013
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D006
Waste Description: Breakthrough Solvent Filters (Large)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 139.678

USAF ANG PORTLAND (Continued) **1000226631**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 116.096

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224396FLE
Ship Date : 12/11/2013
TSD : WAD991281767
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D001 D006
Waste Description: Breakthrough Solvent Filters (Large)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 139.678
Total Amt Of Waste Stream Generated in Reporting Yr 2: 23.582000000000001

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005219269FLE
Ship Date : 03/14/2013
TSD : WAD991281767
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 302.93799999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 98.863

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005220563FLE
Ship Date : 06/05/2013
TSD : WAD991281767
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 302.93799999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 45.350000000000001

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator

USAF ANG PORTLAND (Continued) **1000226631**

Manifest : 005224396FLE
Ship Date : 12/11/2013
TSD : WAD991281767
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 302.93799999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 68.025000000000006

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224981FLE
Ship Date : 09/05/2013
TSD : WAD991281767
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 302.93799999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 90.700000000000003

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224979FLE
Ship Date : 09/05/2013
TSD : WAD981769110
WS Num: 6
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D018
Waste Description: JP8 Fuel Filter Changeout
Total Amt Of Waste Stream Generated in Reporting Yr 1: 71.1995
Total Amt Of Waste Stream Generated in Reporting Yr 2: 71.1995

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005219269FLE
Ship Date : 03/14/2013
TSD : WAD991281767
WS Num: 7
Transporter: WAD058364647
Ship Qty : Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D009
Waste Description: Broken Mercury Lamps
Total Amt Of Waste Stream Generated in Reporting Yr 1: 63.490000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 27.210000000000001

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005220708FLE
Ship Date : 06/27/2013
TSD : WAD991281767
WS Num: 7
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H010
EPA Waste Codes: D005 D009
Waste Description: Broken Mercury Lamps
Total Amt Of Waste Stream Generated in Reporting Yr 1: 63.490000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 36.280000000000001

Year : 2013
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005219270FLE
Ship Date : 03/14/2013
TSD : WAD981769110
WS Num: 8
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 212.238
Total Amt Of Waste Stream Generated in Reporting Yr 2: 74.373999999999995

Manifest:
Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005222784FLE
Ship Date : 09/18/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D005 D006 D007 D008 D035 F005

USAF ANG PORTLAND (Continued) **1000226631**

Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000045114DAT
Ship Date : 05/08/2012
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000045707DAT
Ship Date : 01/31/2012
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003455780FLE
Ship Date : 12/05/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264

USAF ANG PORTLAND (Continued) **1000226631**

Inactive : Not reported
Status: Large quantity generator
Manifest : 004450065FLE
Ship Date : 06/21/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 00522786FLE
Ship Date : 09/18/2012
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035
Waste Description: Miscellaneous Flammable Liquids - Labpack
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005222785FLE
Ship Date : 09/18/2012
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000045114DAT
Ship Date : 05/08/2012
TSD : WAD991281767
WS Num: 3

USAF ANG PORTLAND (Continued) **1000226631**

Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004450065FLE
Ship Date : 06/21/2012
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018
Waste Description: Breakthrough Solvent Filters (Large)
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000045114DAT
Ship Date : 05/08/2012
TSD : WAD991281767
WS Num: 5
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005222787FLE
Ship Date : 09/18/2012
TSD : WAD991281767
WS Num: 5
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004450065FLE
Ship Date : 06/21/2012
TSD : WAD981769110
WS Num: 6
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018
Waste Description: JP8 Fuel Filter Changeout
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003455777FLE
Ship Date : 12/05/2012
TSD : WAD991281767
WS Num: 7
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D009
Waste Description: Broken Mercury Lamps
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005222784FLE
Ship Date : 09/18/2012
TSD : WAD981769110
WS Num: 8
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003455780FLE
Ship Date : 12/05/2012
TSD : WAD981769110
WS Num: 8
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000045114DAT
Ship Date : 05/08/2012
TSD : WAD991281767
WS Num: 8
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000045707DAT
Ship Date : 01/31/2012
TSD : WAD991281767
WS Num: 8
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004445843FLE
Ship Date : 10/15/2012

USAF ANG PORTLAND (Continued) **1000226631**

TSD : WAD991281767
WS Num: 9
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Waste Compressed Gases
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000045144DAT
Ship Date : 05/08/2012
TSD : WAD991281767
WS Num: 10
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D006
Waste Description: Floor Sweepings
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004450065FLE
Ship Date : 06/21/2012
TSD : WAD981769110
WS Num: 11
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 F003 F005
Waste Description: Spent Rags - F-Listed
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000009956DAT
Ship Date : 03/16/2011
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743

USAF ANG PORTLAND (Continued) **1000226631**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1003.1420000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 97.049000000000007

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000045516DAT
Ship Date : 12/15/2011
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1003.1420000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 49.4315

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000018577DAT
Ship Date : 09/27/2011
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1003.1420000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 72.106499999999997

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005672DAT
Ship Date : 07/14/2011
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1003.1420000000001

USAF ANG PORTLAND (Continued) **1000226631**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 119.2705

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000018912DAT
Ship Date : 11/29/2011
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1003.1420000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 151.46899999999999

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005685DAT
Ship Date : 07/14/2011
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1003.1420000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 513.81550000000004

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000009956DAT
Ship Date : 03/06/2011
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035
Waste Description: Miscellaneous Flammable Liquids - Labpack
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7.2560000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 7.2560000000000002

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator

USAF ANG PORTLAND (Continued) **1000226631**

Manifest : 000005672DAT
Ship Date : 07/14/2011
TSD : WAD991281767
WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: 255.32050000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 40.361499999999999

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005685DAT
Ship Date : 07/14/2011
TSD : WAD991281767
WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: 255.32050000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 75.734499999999997

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000018947DAT
Ship Date : 11/29/2011
TSD : WAD991281767
WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: 255.32050000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 82.537000000000006

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Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000045516DAT
Ship Date : 12/15/2011
TSD : WAD991281767

USAF ANG PORTLAND (Continued) **1000226631**

WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: 255.32050000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 56.6875

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000018912
Ship Date : 11/29/2011
TSD : WAD991281767
WS Num: 4
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D001 D006 D008
Waste Description: Breakthrough Solvent Filters (Large)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 116.54949999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 22.675000000000001

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005672DAT
Ship Date : 07/14/2011
TSD : WAD991281767
WS Num: 4
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D006 D008
Waste Description: Breakthrough Solvent Filters (Large)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 116.54949999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 93.874499999999998

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005672
Ship Date : 07/14/2011
TSD : WAD991281767
WS Num: 5
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D035

USAF ANG PORTLAND (Continued) **1000226631**

Waste Description: Adhesives
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33.558999999999997
Total Amt Of Waste Stream Generated in Reporting Yr 2: 33.558999999999997

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000009956
Ship Date : 03/19/2011
TSD : WAD991281767
WS Num: 6
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 224.93600000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 113.375

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000018947
Ship Date : 11/29/2011
TSD : WAD991281767
WS Num: 6
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 224.93600000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 73.013499999999993

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005672
Ship Date : 07/14/2011
TSD : WAD991281767
WS Num: 6
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 224.93600000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 38.547499999999999

Year : 2011
RCRA Id : OR1570024264

USAF ANG PORTLAND (Continued) **1000226631**

Inactive : Not reported
Status: Large quantity generator
Manifest : 000018912
Ship Date : 11/29/2011
TSD : WAD991281767
WS Num: 7
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D018
Waste Description: JP8 Fuel Filter Changeout
Total Amt Of Waste Stream Generated in Reporting Yr 1: 92.967500000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 92.967500000000001

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005685
Ship Date : 07/14/2011
TSD : WAD991281767
WS Num: 8
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D009
Waste Description: Broken Mercury Lamps
Total Amt Of Waste Stream Generated in Reporting Yr 1: 191.8305
Total Amt Of Waste Stream Generated in Reporting Yr 2: 82.990499999999997

Year : 2011
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000018912
Ship Date : 11/29/2011
TSD : WAD991281767
WS Num: 8
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D009
Waste Description: Broken Mercury Lamps
Total Amt Of Waste Stream Generated in Reporting Yr 1: 191.8305
Total Amt Of Waste Stream Generated in Reporting Yr 2: 108.84

Manifest:
Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005734853JJK

USAF ANG PORTLAND (Continued) **1000226631**

Ship Date : 07/15/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 682.06399999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 301.57749999999999

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006578858JJK
Ship Date : 01/28/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 682.06399999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 47.6175

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005435DAT
Ship Date : 12/07/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 682.06399999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 180.94649999999999

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 007068161JJK
Ship Date : 09/09/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 682.06399999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 50.338500000000003

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005528877JJK
Ship Date : 04/27/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 682.06399999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 101.584

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005528877JJK
Ship Date : 04/27/2010
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D035
Waste Description: Miscellaneous Flammable Liquids - Labpack
Total Amt Of Waste Stream Generated in Reporting Yr 1: 36.280000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 33.558999999999997

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005734853JJK
Ship Date : 07/15/2010
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D035
Waste Description: Miscellaneous Flammable Liquids - Labpack
Total Amt Of Waste Stream Generated in Reporting Yr 1: 36.280000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2.7210000000000001

USAF ANG PORTLAND (Continued) **1000226631**

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005435DAT
Ship Date : 12/07/2010
TSD : WAD991281767
WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: 283.4375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 147.84100000000001

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005734853JJK
Ship Date : 07/15/2010
TSD : WAD991281767
WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: 283.4375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 66.664500000000004

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006578858JJK
Ship Date : 01/28/2010
TSD : WAD991281767
WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035 F003 F005
Waste Description: Paint Waste and Thinners from Various Shops
Total Amt Of Waste Stream Generated in Reporting Yr 1: 283.4375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 68.932000000000002

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Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Status: Large quantity generator
Manifest : 005734853JJK
Ship Date : 07/15/2010
TSD : WAD991281767
WS Num: 4
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Spill Cleanup Debris with Free Liquids (flammable)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 421.755
Total Amt Of Waste Stream Generated in Reporting Yr 2: 421.755

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005528877JJK
Ship Date : 04/27/2010
TSD : WAD991281767
WS Num: 5
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D006
Waste Description: Breakthrough Filters (Large)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 102.03749999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 102.03749999999999

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005528877JJK
Ship Date : 04/27/2010
TSD : WAD991281767
WS Num: 6
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D018
Waste Description: JP8 Fuel Tank Bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: 272.10000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005528877JJK
Ship Date : 04/27/2010
TSD : WAD991281767
WS Num: 7
Transporter: WAR000001743

USAF ANG PORTLAND (Continued) **1000226631**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D018
Waste Description: Waste Gasoline from fuel changeout
Total Amt Of Waste Stream Generated in Reporting Yr 1: 126.98
Total Amt Of Waste Stream Generated in Reporting Yr 2: 126.98

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005435DAT
Ship Date : 12/07/2010
TSD : WAD991281767
WS Num: 8
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Adhesives
Total Amt Of Waste Stream Generated in Reporting Yr 1: 40.814999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 40.814999999999998

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005435DAT
Ship Date : 12/07/2010
TSD : WAD991281767
WS Num: 9
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 303.84500000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 140.58500000000001

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005528877JJK
Ship Date : 04/27/2010
TSD : WAD991281767
WS Num: 9
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 303.84500000000003

USAF ANG PORTLAND (Continued) **1000226631**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 36.280000000000001

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005734853JJK
Ship Date : 07/15/2010
TSD : WAD991281767
WS Num: 9
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 303.84500000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 126.98

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000005435DAT
Ship Date : 12/07/2010
TSD : WAD991281767
WS Num: 10
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D018
Waste Description: JP8 Fuel Filter Changeout
Total Amt Of Waste Stream Generated in Reporting Yr 1: 415.85950000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 126.98

Year : 2010
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005734853JJK
Ship Date : 07/15/2010
TSD : WAD991281767
WS Num: 10
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D018
Waste Description: JP8 Fuel Filter Changeout
Total Amt Of Waste Stream Generated in Reporting Yr 1: 415.85950000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 288.87950000000001

Manifest:
Year : 2009

USAF ANG PORTLAND (Continued) **1000226631**

RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006089392JJK
Ship Date : 12/18/2009
TSD : WAD991281767
WS Num: 10
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 313.822
Total Amt Of Waste Stream Generated in Reporting Yr 2: 115.18899999999999

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004811483JJK
Ship Date : 06/09/2009
TSD : WAD991281767
WS Num: 15
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Adhesives
Total Amt Of Waste Stream Generated in Reporting Yr 1: 0.90700000000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 0.90700000000000003

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004963677JJK
Ship Date : 10/02/2009
TSD : WAD991281767
WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D018
Waste Description: Gasoline Tank Bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: 37.186999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 37.186999999999998

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004811483JJK
Ship Date : 06/09/2009
TSD : WAD991281767

USAF ANG PORTLAND (Continued) **1000226631**

WS Num: 6
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 103.398
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3.6280000000000001

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004811483JJK
Ship Date : 06/09/2009
TSD : WAD991281767
WS Num: 7
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D002
Waste Description: Excess/Expired Corrosive, Basic, Inorganic Products
Total Amt Of Waste Stream Generated in Reporting Yr 1: 23.582000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 22.221499999999999

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005606236JJK
Ship Date : 03/25/2009
TSD : WAD991281767
WS Num: 13
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Spill Cleanup Debris with Free Liquids (flammable)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 575.94500000000005
Total Amt Of Waste Stream Generated in Reporting Yr 2: 287.97250000000003

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004811483JJK
Ship Date : 06/09/2009
TSD : WAD991281767
WS Num: 16
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H121
EPA Waste Codes: D002

USAF ANG PORTLAND (Continued) **1000226631**

Waste Description: Corrosive Acids; may contain heavy metals
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8.1630000000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 8.1630000000000003

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004963677JJK
Ship Date : 10/02/2009
TSD : WAD991281767
WS Num: 8
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D002 D008
Waste Description: Oxygen Sensor
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2.2675000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 0.90700000000000003

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006089392JJK
Ship Date : 12/18/2009
TSD : WAD991281767
WS Num: 24
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H121
EPA Waste Codes: D002 D007
Waste Description: Liquid Alodine
Total Amt Of Waste Stream Generated in Reporting Yr 1: 0.90700000000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 0.90700000000000003

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004963677JJK
Ship Date : 10/02/2009
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D035
Waste Description: Miscellaneous Flammable Liquids - Labpack
Total Amt Of Waste Stream Generated in Reporting Yr 1: 73.466999999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5.4420000000000002

USAF ANG PORTLAND (Continued) **1000226631**

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Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004963677JJK
Ship Date : 10/02/2009
TSD : WAD991281767
WS Num: 4
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D018
Waste Description: Gasoline Fuel Filter Changeout
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9.0700000000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 9.0700000000000003

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004811483JJK
Ship Date : 06/09/2009
TSD : WAD991281767
WS Num: 10
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 313.822
Total Amt Of Waste Stream Generated in Reporting Yr 2: 68.932000000000002

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004963677JJK
Ship Date : 10/02/2009
TSD : WAD991281767
WS Num: 10
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealing Compound and Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: 313.822
Total Amt Of Waste Stream Generated in Reporting Yr 2: 54.420000000000002

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Status: Large quantity generator
Manifest : 004811483JJK
Ship Date : 06/09/2009
TSD : WAD991281767
WS Num: 8
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D002 D008
Waste Description: Oxygen Sensor
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2.2675000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 0.45350000000000001

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006090975JJK
Ship Date : 07/21/2009
TSD : WAD991281767
WS Num: 9
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 675.71500000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 49.884999999999998

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 006089392JJK
Ship Date : 12/18/2009
TSD : WAD991281767
WS Num: 19
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D035
Waste Description: Paint Waste and Thinner/Bulked Excess and Expired Product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2.2675000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2.2675000000000001

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004963677JJK
Ship Date : 10/02/2009
TSD : WAD991281767
WS Num: 9
Transporter: WAR000001743

USAF ANG PORTLAND (Continued) **1000226631**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 675.71500000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 197.726

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005606236JJK
Ship Date : 03/25/2009
TSD : WAD991281767
WS Num: 9
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 675.71500000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 186.84200000000001

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 005606236JJK
Ship Date : 03/25/2009
TSD : WAD991281767
WS Num: 6
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: 103.398
Total Amt Of Waste Stream Generated in Reporting Yr 2: 31.745000000000001

Year : 2009
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004811483JJK
Ship Date : 06/09/2009
TSD : WAD991281767
WS Num: 12
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D018
Waste Description: JP8 Fuel Tank Bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: 447.60449999999997

USAF ANG PORTLAND (Continued) **1000226631**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 121.08450000000001

Manifest:
Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 001359462JJK
Ship Date : 02/01/2008
TSD : WAD991281767
WS Num: 5
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D009
Waste Description: Broken Mercury Lamps
Total Amt Of Waste Stream Generated in Reporting Yr 1: 23.128499999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 27.210000000000001

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003617825JJK
Ship Date : 12/11/2008
TSD : WAD991281767
WS Num: 7
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006 D007
Waste Description: Plastic Blast Media with heavy metals
Total Amt Of Waste Stream Generated in Reporting Yr 1: 590.91049999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 136.05000000000001

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004058346JJK
Ship Date : 06/26/2008
TSD : WAD991281767
WS Num: 18
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D001
Waste Description: Calcium Hypochlorite
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1.3605
Total Amt Of Waste Stream Generated in Reporting Yr 2: 0.90700000000000003

Year : 2008

USAF ANG PORTLAND (Continued) **1000226631**

RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 001359462JJK
Ship Date : 02/01/2008
TSD : WAD991281767
WS Num: 4
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Paint Debris with no solvents added from cleanup processes
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43.082500000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 27.210000000000001

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 001359462JJK
Ship Date : 02/01/2008
TSD : WAD991281767
WS Num: 10
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D018
Waste Description: Cleanup Absorbents (Rags, Pads, Gas, Oil, Diesel, Water)No free liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 34.012500000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 34.012500000000003

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003610579JJK
Ship Date : 04/10/2008
TSD : WAD991281767
WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001
Waste Description: Misc Flammable liquids (single line items)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 126.98
Total Amt Of Waste Stream Generated in Reporting Yr 2: 126.98

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003610579JJK
Ship Date : 04/10/2008
TSD : WAD991281767

USAF ANG PORTLAND (Continued) **1000226631**

WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D018
Waste Description: Waste Gasoline from fuel changeout
Total Amt Of Waste Stream Generated in Reporting Yr 1: 240.35499999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 47.6175

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 001359462JJK
Ship Date : 02/01/2008
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D018
Waste Description: Waste Gasoline from fuel changeout
Total Amt Of Waste Stream Generated in Reporting Yr 1: 240.35499999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 311.101

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003617809JJK
Ship Date : 12/11/2008
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 679.34299999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 84.804500000000004

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003610579JJK
Ship Date : 04/10/2008
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D035 F005

USAF ANG PORTLAND (Continued) **1000226631**

Waste Description: Paint Debris with F-coded Solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 679.34299999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 42.1755

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1420 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 001359462JJK
Ship Date : 02/01/2008
TSD : WAD991281767
WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001
Waste Description: Misc Flammable liquids (single line items)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 126.98
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2.2675000000000001

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 001359462JJK
Ship Date : 02/01/2008
TSD : WAD991281767
WS Num: 9
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D006
Waste Description: Breakthrough Filters (Large)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 108.3865
Total Amt Of Waste Stream Generated in Reporting Yr 2: 108.3865

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004813053JJK
Ship Date : 11/25/2008
TSD : WAD991281767
WS Num: 12
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D043 F001
Waste Description: Investigation Derived Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1465.712
Total Amt Of Waste Stream Generated in Reporting Yr 2: 416.31299999999999

USAF ANG PORTLAND (Continued) **1000226631**

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004058346JJK
Ship Date : 06/26/2008
TSD : WAD991281767
WS Num: 15
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D006 D007 D008 D035
Waste Description: Paint Waste and Thinner/Bulked Excess and Expired Product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 170.0625
Total Amt Of Waste Stream Generated in Reporting Yr 2: 170.0625

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003618480JJK
Ship Date : 09/22/2008
TSD : WAD991281767
WS Num: 29
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D008 D035
Waste Description: Miscellaneous Flammable Liquids - Labpack
Total Amt Of Waste Stream Generated in Reporting Yr 1: 29.477499999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 13.605

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003617825JJK
Ship Date : 12/11/2008
TSD : WAD991281767
WS Num: 35
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H135
EPA Waste Codes: D002 D007
Waste Description: Liquid Alodine
Total Amt Of Waste Stream Generated in Reporting Yr 1: 0.45350000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 0.45350000000000001

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003618480JJK
Ship Date : 09/22/2008

USAF ANG PORTLAND (Continued) **1000226631**

TSD : WAD991281767
WS Num: 7
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006 D007
Waste Description: Plastic Blast Media with heavy metals
Total Amt Of Waste Stream Generated in Reporting Yr 1: 590.91049999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 264.39049999999997

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 001359462JJK
Ship Date : 02/01/2008
TSD : WAD991281767
WS Num: 7
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006 D007
Waste Description: Plastic Blast Media with heavy metals
Total Amt Of Waste Stream Generated in Reporting Yr 1: 590.91049999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 133.7825

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 004050269JJK
Ship Date : 07/31/2008
TSD : WAD991281767
WS Num: 12
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H135
EPA Waste Codes: D043 F001
Waste Description: Investigation Derived Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1465.712
Total Amt Of Waste Stream Generated in Reporting Yr 2: 189.1095

Year : 2008
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 003617825JJK
Ship Date : 12/11/2008
TSD : WAD991281767
WS Num: 29
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050

USAF ANG PORTLAND (Continued) **1000226631**

EPA Waste Codes: D001 D008 D035
Waste Description: Miscellaneous Flammable Liquids - Labpack
Total Amt Of Waste Stream Generated in Reporting Yr 1: 29.477499999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 15.8725

Manifest:
Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000228417JJK
Ship Date : 10/10/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 5
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: LABP
Waste Description: Toxic Characteristic LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 002146698JJK
Ship Date : 12/12/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 70
Rpt Unit : LB
Off Mng : H112
EPA Waste Codes: D005 D007
Waste Description: Paint Booth Filter
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 6073A
Ship Date : 03/14/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 185
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealant/Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 002146698JJK
Ship Date : 12/12/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 5
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Storm Drain Sludge (Inside Bldg #250
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 002146698JJK
Ship Date : 12/12/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 15
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D001 D003 D009
Waste Description: Expired M256-A1 CDE kits
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 6221A
Ship Date : 08/09/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 469
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D018
Waste Description: Diesel Tank Bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator

USAF ANG PORTLAND (Continued) **1000226631**

Manifest : 000228417JJK
Ship Date : 12/12/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 102
Rpt Unit : LB
Off Mng : H112
EPA Waste Codes: D006 D007
Waste Description: Plastic Blast Media Filter with Heavy Metals
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000228417JJK
Ship Date : 10/10/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 308
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D006 D007
Waste Description: Glass Blast Media contaminated with heavy metals
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 002146698JJK
Ship Date : 12/12/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 30
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008
Waste Description: PD 680 Non Flammable with metals
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000228417JJK
Ship Date : 10/10/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 152

USAF ANG PORTLAND (Continued) **1000226631**

Rpt Unit : LB
Off Mng : H050
EPA Waste Codes: LABP
Waste Description: Expired/Excess Flammable LP
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 6221A
Ship Date : 08/09/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 520
Rpt Unit : LB
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D008 F003 F005
Waste Description: Paint Waste and Thinners
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000228417JJK
Ship Date : 10/10/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 150
Rpt Unit : LB
Off Mng : H050
EPA Waste Codes: D001 D005 D007 D008 F003 F005
Waste Description: Paint Waste and Thinners
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 6157A
Ship Date : 05/30/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 523
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035

USAF ANG PORTLAND (Continued) **1000226631**

Waste Description: Painting cleanup debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 000228417JJK
Ship Date : 10/10/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 3
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Sealant/Adhesive Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 6157A
Ship Date : 05/30/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 2
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: U080
Waste Description: Miscellaneous U-Listed products/chemicals
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 6157A
Ship Date : 05/30/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 10
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: LABP
Waste Description: Toxic Characteristic LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264

USAF ANG PORTLAND (Continued) **1000226631**

Inactive : Not reported
Status: Large quantity generator
Manifest : 6157A
Ship Date : 05/30/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 12
Rpt Unit : LB
Off Mng : H129
EPA Waste Codes: LABP
Waste Description: Corrosive LABP (acidic or basic)
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 002146698JJK
Ship Date : 12/12/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 232
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D001 D018
Waste Description: Gasoline/Fluid changeout, purging.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 002146698JJK
Ship Date : 12/12/2006
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 521
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Paint Debris with F-coded solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 6073A
Ship Date : 03/14/2006
TSD : WAD991281767
WS Num: Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Transporter: WAR000001743
Ship Qty : 15
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: LABP
Waste Description: Miscellaneous Flammable Aerosol LABP
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4153A
Ship Date : 06/01/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 3000
Rpt Unit : LB
Off Mng : H077
EPA Waste Codes: D006
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4326A
Ship Date : 08/23/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 360
Rpt Unit : LB
Off Mng : H050
EPA Waste Codes: D008
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4153A
Ship Date : 06/01/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 16
Rpt Unit : LB

USAF ANG PORTLAND (Continued) **1000226631**

Off Mng : H050
EPA Waste Codes: D001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4153A
Ship Date : 06/01/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 12
Rpt Unit : LB
Off Mng : H050
EPA Waste Codes: D001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4153A
Ship Date : 06/01/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 116
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D001 D018
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4236A
Ship Date : 08/23/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 202
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: LABP
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4314A
Ship Date : 11/09/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 289
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4314A
Ship Date : 11/09/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 147
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D006 D007 D008
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4153A
Ship Date : 06/01/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 399
Rpt Unit : LB
Off Mng : H050
EPA Waste Codes: D001 D018
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4064A
Ship Date : 03/04/2004

USAF ANG PORTLAND (Continued) **1000226631**

TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 45
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D007 D011
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Click this hyperlink while viewing on your computer to access
1420 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4236A
Ship Date : 11/23/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 487
Rpt Unit : LB
Off Mng : H082
EPA Waste Codes: D043 F001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4064A
Ship Date : 03/04/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 381
Rpt Unit : LB
Off Mng : H050
EPA Waste Codes: D001 D018
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4263A
Ship Date : 08/23/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743

USAF ANG PORTLAND (Continued) **1000226631**

Ship Qty : 601
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4314A
Ship Date : 11/09/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 428
Rpt Unit : LB
Off Mng : H050
EPA Waste Codes: D001 D018
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4236A
Ship Date : 08/23/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 267
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D001 D018
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4236A
Ship Date : 08/23/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 155
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D001 D018
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

USAF ANG PORTLAND (Continued) **1000226631**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4153A
Ship Date : 06/01/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 163
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D005 D006 D007 D008 D035
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4153A
Ship Date : 06/01/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 115
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator
Manifest : 4153A
Ship Date : 06/01/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 35
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: LABP
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : OR1570024264
Inactive : Not reported
Status: Large quantity generator

USAF ANG PORTLAND (Continued) **1000226631**

Manifest : 4064A
Ship Date : 03/04/2004
TSD : WAD991281767
WS Num: Not reported
Transporter: WAR000001743
Ship Qty : 1060
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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A4 **OREGON AIR NATIONAL GUARD** **OR LUST** **U003999697**
Target **6801 NE CORNFOOT RD** **OR UST** **N/A**
Property **PORTLAND, OR 97218**

Site 4 of 23 in cluster A

Actual: **22 ft.**

LUST:
Region: North Western Region
Facility ID: 26-93-0213
Cleanup Received Date: 12/09/1993
Cleanup Start Date: 12/09/1993
Cleanup Complete Date: 01/02/2002
Decode for Region: North West Region

UST:
Facility ID: 8865
Facility Telephone: 503 335 4462
Permittee Name: Roger Rein
Number of Permitted Tanks: 2
Active Tanks: 2
Decommissioned Tanks: 26
Number of Tanks: 28

A5 **OR SPILLS** **S117037174**
Target **6801 NE CORNFOOT RD.** **N/A**
Property **PORTLAND, OR 97218**

Site 5 of 23 in cluster A

Actual: **22 ft.**

OR SPILLS:
Facility ID: 2014-0870
Incident Status: Referred/Closed
Material: Oil - Kerosene
Quantity: 40
Unit of Measure: Gallons
Release Date: 04/24/2014
Description: Oregon Air National Guard reported jet fuel spill from over filled tank. 40 gallons onto the pavement and into the dirt. Absorbents were used and they will follow up with testing. They will be contacting Dan Hafley with DEQ about further clean up.
Lat/Long: 45.574455 / -122.59356
Source: Motor Vehicle - Tank Truck

(Continued) **S117037174**

Media: Soil
Responsible Company: Oregon Air National Guard - 142nd Fighter Wing
Responsible Address: 6801 NE Cornfoot Rd.
Responsible City,St,Zip: Portland, OR 97218

A6 **OREGON AIR NATIONAL GUARD BASE** **OR RGA HWS** **S115336348**
Target Property **6801 NE CORNFOOT RD** **N/A**
PORTLAND, OR

Site 6 of 23 in cluster A

Actual: 22 ft.

RGA HWS:

2005	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD
2004	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD
2003	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD
2002	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD
2001	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD
2000	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD
1999	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD
1998	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD
1997	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD
1996	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD
1995	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD

A7 **OR AIR NATIONAL GUARD HOT** **OR RGA LUST** **S115412914**
Target Property **6801 NE CORNFOOT RD** **N/A**
PORTLAND, OR

Site 7 of 23 in cluster A

Actual: 22 ft.

RGA LUST:

2012	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD
2011	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD
2010	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD
2009	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD
2008	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD
2007	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD
2006	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD
2005	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD

OR AIR NATIONAL GUARD HOT (Continued) **S115412914**

2004	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD
2003	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD
2002	OR AIR NATIONAL GUARD HOT	6801 NE CORNFOOT RD

A8 **OREGON AIR NATIONAL GUARD BASE** **OR RGA HWS** **S115336346**
Target Property **6801 NE CORNFOOT DR.** **N/A**
PORTLAND, OR

Site 8 of 23 in cluster A

Actual: 22 ft.

RGA HWS:

2012	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT DR.
2011	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT DR.
2010	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT DR.
2009	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT DR.
2008	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT DR.
2007	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT DR.

A9 **OREGON AIR NATIONAL GUARD BASE** **OR CRL** **S105527699**
Target Property **6801 NE CORNFOOT DR.** **OR ECSI** **N/A**
PORTLAND, OR 97218 **OR SWF/LF**
OR AST
Site 9 of 23 in cluster A **OR VCP**
OR SPILLS
Actual: 22 ft. **OR HAZMAT**
OR AIRS
OR HSIS
OR NPDES
OR UIC

CRL:

Facility ID:	1372
Location ID:	8942
Status Code:	LIS
Facility Status:	Partial No Further Action
Lat/Long:	45.5749 / -122.5914

ECSI:

State ID Number:	1372
Brown ID:	0
Study Area:	False
Region ID:	Not reported
Legislatve ID:	839
Investigation:	Listed on the CRL/Inventory
FACA ID:	8942
Further Action:	257
Lat/Long (dms):	45 34 29.60 / -122 35 29.00
County Code:	26.00
Score Value:	Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Cerclis ID: 1570024264
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 7
Qtr Section: Not reported
Tax Lots: Not reported
Size: Approx. 245 acres
NPL: False
Orphan: False
Updated By: DHAFLEY
Update Date: 11/15/2018
Created Date: 05/11/1993
Decode For RegionID: Not reported
Decode For BrownID: Not reported
Decode For Furtheract: High-Medium
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Other
Alias Name: 142nd Fighter Interceptor Group
Alias Name: ANG Portland
Alias Name: US AF - Portland Air National Guard Base

Hazardous Release:
Substance ID.: 121694
Haz Release ID: 385192
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 75-09-2
Substance Name: METHYLENE CHLORIDE
Substance Abbrev.: Not reported
Substance Category ID: 8518
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8518
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319341
Sub Alias Name: DICHLOROMETHANE
Substance Alias ID: 319342
Sub Alias Name: METHANE DICHLORIDE
Substance Alias ID: 319343
Sub Alias Name: METHYLENE BICHLORIDE
Substance Alias ID: 319344
Sub Alias Name: METHYLENE DICHLORIDE
Comment ID: 302903
Release Code: General Comments
Release Comments: from use of Halon fire extinguishers in training
Decode for Relcomcd: General Comments
Sampling Result ID: 343629
Feature Id: Not reported
Hazard Release Id: 385192

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 12/17/1988
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1,500 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121631
Haz Release ID: 385193
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 74-97-5
Substance Name: BROMOCHLOROMETHANE
Substance Abbrev.: Not reported
Substance Alias ID: 319245
Sub Alias Name: CHLOROBROMOMETHANE
Substance Alias ID: 319246
Sub Alias Name: METHYLENE CHLOROBROMIDE
Comment ID: 302902
Release Code: General Comments
Release Comments: from use of Halon fire extinguishers in training
Decode for Relcomcd: General Comments
Sampling Result ID: 343630
Feature Id: Not reported
Hazard Release Id: 385193
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 12/17/1988
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 140,000 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121781
Haz Release ID: 385194
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Update By: Not reported
Substance Code: 79-01-6
Substance Name: TRICHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317517
Sub Alias Name: ETHINYL TRICHLORIDE
Substance Alias ID: 317518
Sub Alias Name: ETHYLENE TRICHLORIDE
Substance Alias ID: 317519
Sub Alias Name: TCE
Substance Alias ID: 317520
Sub Alias Name: TRI-CLENE
Substance Alias ID: 317521
Sub Alias Name: TRICHLOROETHENE
Sampling Result ID: 343631
Feature Id: Not reported
Hazard Release Id: 385194
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 12/17/1988
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 710 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121429
Haz Release ID: 385195
Qty Released: unknown
Date Released: unknown

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Update Date: 06/19/1996
Update By: Not reported
Substance Code: 540-59-0
Substance Name: DICHLOROETHYLENE,1,2-
Substance Abbrev.: Not reported
Substance Alias ID: 318702
Sub Alias Name: DICHLOROETHENE,1,2-
Sampling Result ID: 343632
Feature Id: Not reported
Hazard Release Id: 385195
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 12/17/1988
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 130 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121608
Haz Release ID: 385196
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 71-43-2
Substance Name: BENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319178
Sub Alias Name: BENZOL
Substance Alias ID: 319179
Sub Alias Name: COAL NAPTHA
Substance Alias ID: 319180
Sub Alias Name: CYCLOHEXATRIENE
Substance Alias ID: 319181
Sub Alias Name: PHENE
Substance Alias ID: 319182
Sub Alias Name: PYROBENZOL
Comment ID: 302901
Release Code: Release Containment

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Release Comments: UST
Decode for Relcomcd: Release Containment
Sampling Result ID: 343633
Feature Id: Not reported
Hazard Release Id: 385196
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/18/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1,920 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121051
Haz Release ID: 385197
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 1330-20-7
Substance Name: XYLENEs
Substance Abbrev.: Not reported
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317017
Sub Alias Name: DIMETHYLBENZENEs
Substance Alias ID: 317018
Sub Alias Name: XYLOLs
Comment ID: 302900
Release Code: Release Containment
Release Comments: UST
Decode for Relcomcd: Release Containment
Sampling Result ID: 343634
Feature Id: Not reported
Hazard Release Id: 385197
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Sample Depth: Not reported
Start Date: 03/11/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2,650 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 120883
Haz Release ID: 385198
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 108-88-3
Substance Name: TOLUENE
Substance Abbrev.: Not reported
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316466
Sub Alias Name: BENZENE,METHYL-
Substance Alias ID: 316467
Sub Alias Name: METHACIDE
Substance Alias ID: 316468
Sub Alias Name: METHYLBENZENE
Substance Alias ID: 316469
Sub Alias Name: METHYLBENZOL
Substance Alias ID: 316470
Sub Alias Name: PHENYLMETHANE
Substance Alias ID: 316471
Sub Alias Name: TOLUOL
Comment ID: 302899
Release Code: Release Containment
Release Comments: UST
Decode for Relcomcd: Release Containment
Sampling Result ID: 343635
Feature Id: Not reported
Hazard Release Id: 385198
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/11/1994
End Date: Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1,860 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 120781
Haz Release ID: 385199
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 100-41-4
Substance Name: ETHYLBENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316146
Sub Alias Name: ETHYLBENZOL
Substance Alias ID: 316147
Sub Alias Name: PHENYLETHANE
Comment ID: 302898
Release Code: Release Containment
Release Comments: UST
Decode for Relcomcd: Release Containment
Sampling Result ID: 343636
Feature Id: Not reported
Hazard Release Id: 385199
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/11/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 490 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121868
Haz Release ID: 385200
Qty Released: unknown
Date Released: unknown

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Update Date: 06/19/1996
Update By: Not reported
Substance Code: 91-20-3
Substance Name: NAPHTHALENE
Substance Abbrev.: Not reported
Substance Category ID: 8494
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8494
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317793
Sub Alias Name: MOTH BALLS
Substance Alias ID: 317794
Sub Alias Name: NAPHTHENE
Substance Alias ID: 317795
Sub Alias Name: TAR CAMPHOR
Sampling Result ID: 343637
Feature Id: Not reported
Hazard Release Id: 385200
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/18/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2,120 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121195
Haz Release ID: 385201
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 206-44-0
Substance Name: FLUORANTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8491
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8491
Substance Category: Semi-volatiles
Category Level: Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317398
Sub Alias Name: BENZACENAPHTHENE,1,2-
Substance Alias ID: 317399
Sub Alias Name: BENZO(jk)FLUORENE
Sampling Result ID: 343638
Feature Id: Not reported
Hazard Release Id: 385201
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/18/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1,020 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121824
Haz Release ID: 385202
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 85-01-8
Substance Name: PHENANTHRENE
Substance Abbrev.: Not reported
Substance Alias ID: 317648
Sub Alias Name: PHENATHRIN
Sampling Result ID: 343639
Feature Id: Not reported
Hazard Release Id: 385202
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/18/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1,200 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121210
Haz Release ID: 385203

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 218-01-9
Substance Name: CHRYSENE
Substance Abbrev.: Not reported
Substance Category ID: 8481
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8481
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317438
Sub Alias Name: BENZ(a)PHENANTHRENE
Substance Alias ID: 317439
Sub Alias Name: BENZPHENANTHRENE,1,2-
Substance Alias ID: 317440
Sub Alias Name: DIBENZONAPHTHALENE,1,2,5,6-
Sampling Result ID: 343640
Feature Id: Not reported
Hazard Release Id: 385203
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/18/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 210 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121462
Haz Release ID: 385204
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 56-55-3
Substance Name: BENZO(a)ANTHRACENE
Substance Abbrev.: Not reported
Substance Category ID: 8475
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8475

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318790
Sub Alias Name: BENZ(a)ANTHRACENE
Substance Alias ID: 318791
Sub Alias Name: BENZANTHRACENE,1,2-
Substance Alias ID: 318792
Sub Alias Name: BENZANTHRENE
Substance Alias ID: 318793
Sub Alias Name: BENZOANTHRACENE
Substance Alias ID: 318794
Sub Alias Name: BENZPHENANTHRENE,2,3-
Substance Alias ID: 318795
Sub Alias Name: NAPHTHANTHRACENE
Substance Alias ID: 318796
Sub Alias Name: TETRAPHENE
Sampling Result ID: 343641
Feature Id: Not reported
Hazard Release Id: 385204
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/18/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 160 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121374
Haz Release ID: 385205
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 50-32-8
Substance Name: BENZO(a)PYRENE
Substance Abbrev.: Not reported
Substance Category ID: 8476
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8476
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318559

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Sub Alias Name: B(a)P
Substance Alias ID: 318560
Sub Alias Name: BENZOPYRENE,3,4-
Substance Alias ID: 318561
Sub Alias Name: BENZPYRENE,3,4-
Substance Alias ID: 318562
Sub Alias Name: BP
Sampling Result ID: 343642
Feature Id: Not reported
Hazard Release Id: 385205
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/18/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 110 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121192
Haz Release ID: 385206
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 205-99-2
Substance Name: BENZO(b)FLUORANTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8477
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8477
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317390
Sub Alias Name: B(b)F
Substance Alias ID: 317391
Sub Alias Name: BENZ(e)ACEPHENANTHRYLENE
Substance Alias ID: 317392
Sub Alias Name: BENZFLUORANTHENE,3,4-
Substance Alias ID: 317393
Sub Alias Name: BENZOFLUORANTHENE,2,3-
Substance Alias ID: 317394
Sub Alias Name: BENZOFLUORANTHENE,3,4-
Sampling Result ID: 343643
Feature Id: Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Hazard Release Id: 385206
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/18/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 170 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121167
Haz Release ID: 385207
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported
Substance Code: 191-24-2
Substance Name: BENZO(ghi)PERYLENE
Substance Abbrev.: Not reported
Substance Alias ID: 317305
Sub Alias Name: B(ghi)P
Substance Alias ID: 317306
Sub Alias Name: BENZOPERYLENE,1,12-
Substance Alias ID: 317307
Sub Alias Name: BENZPERYLENE,1,12-
Sampling Result ID: 343644
Feature Id: Not reported
Hazard Release Id: 385207
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/18/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 63 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121196
Haz Release ID: 385208
Qty Released: unknown
Date Released: unknown
Update Date: 06/19/1996
Update By: Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Substance Code: 207-08-9
Substance Name: BENZO(k)FLUORANTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8478
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8478
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317400
Sub Alias Name: B(k)F
Substance Alias ID: 317401
Sub Alias Name: BENZOFLUORANTHENE,11,12-
Sampling Result ID: 343645
Feature Id: Not reported
Hazard Release Id: 385208
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/18/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 93 ppb
Last Update By: gmw
Update Date: 09/15/1995
Decode for MediumID: Groundwater

Substance ID.: 121690
Haz Release ID: 382598
Qty Released: Not reported
Date Released: Not reported
Update Date: 04/20/2000
Update By: Not reported
Substance Code: 75-01-4
Substance Name: VINYL CHLORIDE
Substance Abbrev.: Not reported
Substance Category ID: 8525
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8550
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8525
Substance Category: Volatiles

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8550
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319325
Sub Alias Name: CHLOROETHENE
Substance Alias ID: 319326
Sub Alias Name: CHLOROETHYLENE
Substance Alias ID: 319327
Sub Alias Name: ETHENE,CHLORO-
Substance Alias ID: 319328
Sub Alias Name: MONOCHLOROETHYLENE
Sampling Result ID: 339460
Feature Id: Not reported
Hazard Release Id: 382598
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/01/1999
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 367 ppb
Last Update By: jmw
Update Date: 04/20/2000
Decode for MediumID: Groundwater

Narrative:

NARR ID: 5732929
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: DHAFLEY
Updated Date: 09/19/2017
Decode for NarcdID: Contamination
NARR Comments: Petroleum hydrocarbons (aviation fuel, diesel, etc.), solvents, metals, and perfluorinated compounds from storage and use of fire-fighting chemicals. Impacts to soil, groundwater, and sediment have been observed.

NARR ID: 5732930
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: DHAFLEY
Updated Date: 04/11/2018
Decode for NarcdID: Data Sources
NARR Comments: 1) Correspondence to/from Roger Rein, USAF. 2) LUST file #26-88-0095. 3) LUST file #26-93-0213. 4) August 1987 HMTC <quot>Phase 1 IRP - Records Search<quot>. 5) June 1990 HAZWRAP <quot>Draft Final Report

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

for Site Investigation<quot>. 6) November 2002 IRM 100% Remedial Design (Site 11) 7) January 2004 Record of Decision 8) September 2004 100% Remedial Design (Sites 2 and 9) 9) Phase I, II, and II Deep Zone Investigation Report (Site 2), October 31, 2005 10) Site 2 Round 1, 2, and 3 Reports, 2005-present 11) Site 11 Monitoring/treatment reports (2006-present) 12) Site 2 Round 4/Annual Effectiveness Evaluation Report, June 2006 13) Remedial Process Optimization (RPO) Site Visit Report, July 2006 14) Final Meeting Minutes for 14 September 2005 RAB Meeting, October 2005. 15) Site 4, Building 430, and Site 11 Investigation Work Plan; March 2007. 16) Site 2 Injection Completion Report 17) Construction Completion Report for Site 4 Drainage Ditch; June 2008 18) Site 4, Building 430, Phase I, II, and III Site Investigation Report; December 2008. 19) Site 9 Closure Evaluation 20) Site 9 NFA (DEQ) 21) Site 4 Decision Document; December 2008 22) Site 4 NFA (DEQ), July 27, 2009. 23) Groundwater Monitoring Work Plan, Sites 1, 2, 3, and 11; ERM, July 2009. 24) Draft 5-Year Review, Sites 1, 2, 3, and 11; ERM, August 2010. 25) Final Quality Control Plan, Sites 1, 2, 3, and 11; ERM, October 2010. 26) Draft Enhanced In Situ Bioremediation Implementation Work Plan/Operation, Maintenance, and Monitoring Manual; ERM, October 2010. 27) Fall 2009 Through Spring 2010 Performance Monitoring Report for Site 11 (Final); CH2M HILL, November 2010. 28) Final Groundwater Monitoring Work Plan, Sites 1, 2, 3, and 11; ERM, January 2011. 29) Final Phase II Operational Range Assessment Plan, ANG Portland SAR and EOD Range; BEM Systems, January 2011. 30) Final Enhanced In Situ Bioremediation Implementation Work Plan/Operation, Maintenance and Monitoring Manual; ERM, February 2011. 31) Draft Changes in Revised Target Cleanup Levels for Groundwater at Sites 1, 2, and 3; ERM, February 3, 2011. 32) Performance Monitoring Report for Site 11, Fall 2010. CH2M HILL, March 2011. 33) Management Action Plan. ERM, June 2011. 34) Investigation Work Plan for Oil/Water Separator Release in Stormwater Ditch. CH2M HILL, June 2011. 35) Diesel Generator Spill Site characterization Report. Grant Associates, June 1, 2011. 36) Final Explanation of Significant Differences for Sites 1,2, 3, and 11. ERM, July 2011. 37) Performance Monitoring Report #2 for Sites 1, 2, 3, and 11. ERM October 2011. 38) Investigation Report for Oil/Water Separator Release in Stormwater Ditch. CH2M HILL, December 2011. 39) Building 433 Diesel Spill Cleanup Report, March 13, 2012. 40) DEQ closure letter for Bulding 433 area diesel release; September 2012. 41) Performance Monitoring Report #4 - March 2012. ERM, September 2012. 42) Phase II Environmental Site Assessment, OANG Lease Return Area. Ash Creek Associates, December 9, 2011. 43) Performance Monitoring Report #5 - October 2012. ERM, March 2013. FINAL April 2013. 44) Draft Final Site Investigation Worl Plan (VMA Building 188). ERM, February 2013. 45) Final Site Investigation Work Plan (VMA Building 188). ERM, March 2013. 46) FINAL Enhanced In Situ Bioremediation Implementation Completion Report, Sites 1, 2, 3, and 11. ERM, May 2013. 47) Final Phase II EBS Site Assessment Report. October 2013. 48) Final Site Investigation Report (Building 188). ERM, October 2013. 49) Revised Final Site Investigation Report. ERM, December 2013. 50) Sanitary Sewer Release Investigation Report. June 2015. 51) Final Closure Report for Jet Fuel Release. ANG; June 2015. 52) Final Well Abandonment Completion Report, ERP Sites 1 through 11. Tetra Tech; March 2016. 53) Draft Final No further Response Action Planned for Sites 1, 2, 3, & 11 and Basewide ERP Land Use Restrictions. TetraTech, Inc.; January 2017. 54) Final No Further Response Action Planned for Sites 1, 2, 3, % 11 and Basewide ERP Land

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Use Restrictions. TetraTech, Inc.., June 2017. 55) DEQ concurrence lette on NFRAP for Sites 1, 2, 3, and 11. 56) Work Plan for FY 2017 Phase III Regional Site Inspection for PFOS and PFOC at Portland Air National Guard Base. Leidos; April 5, 2018. Other: Quarterly and semi-annual groundwater monitoring reports for Sites 2, 9, and 11. Site 2 and 11 progress reports related to ongoing remedial work Other: Miscellaneous Site Investigation Reports Quarterly Groundwater Monitoring Reports (2001-Present) Quarterly Site 11 Progress Reports (2003-Present)

NARR ID: 5732931
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: DHAFLEY
Updated Date: 09/19/2017
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Diesel, jet fuel, other hydrocarbons, PAHs, PCBs, solvents, chlorinated VOCs, and metals. As of 2016, perfluorinated compounds identified as a site contaminant of interest.

NARR ID: 5746020
NARR Code: Project Issues Summary
Created By: DHAFLEY
Created Date: 12/10/2004
Updated By: DHAFLEY
Updated Date: 09/19/2017
Decode for NarcdID: Project Issues Summary
NARR Comments: No further action required for Sites 5,7,8, & 10. 2004 identified treatement for Sites 2 and 9 consisting of in-situ chemical oxidation (ISCO) treatment, and excavation of contaminated ditch sediments at Site 4. Treatment at Site 2 including 6 ISCO injections was completed, and post-injection monitoring is currently taking place. At Site 9, TPH constituents degraded to below target cleanup levels without treatment, and a NFA was issued in 2008. At Site 4, removal of contaminated ditch sediments was completed in 2007, and an NFA is pending. At Site 11, initial IRM treatment consisting of ISCO was relatively unsuccessful, and the treatment plan was modified. Injection of emulsified oil to stimulate enhanced in-situ bioremediation to treat remaining VOC contamination was started in 2007. An additional phase of in-situ treatment (injection of emulsified) occured starting in September 2009. Post-treatment groundwater monitoring is ongoing at the combined Sites 1,2, and, 3 (referred to as Site 2), with contaminant concentrations generally below EPA MCLs. DEQ has recommended in-situ treatment at three well locations to address residual solvent contamination above MCL; work is expected to take place in late 2009 or 2010. Site 4 (including Building 430) work is complete; a NFA determination was made for this area on July 27, 2009. Based on continuing elevated (modestly) HVOCs in Site 2 and 11, additional injection work was completed in 2010. At Site 2, emulsified oil and EHC were injected. At Site 11, emulsified oil was injected. Post-injection monitoring is ongoing. In June 2011, an Explanation of Significant Differences was approved by DEQ for sites 1,2,3, and 11. The ESD included modestly revised cleanup levels for site contaminants. Based on the results of July 2011 groundwater monitoring, cleanup levels have largely been achieved. A proposal for compliance monitoring through 2013 has been approved. On a separate

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

track, DEQ is overseeing investigation and cleanup related to two smaller releases on the ANG facility. A diesel generator spill site characterization report was approved by DEQ in June 2011, and a corrective action plan pending. An investigation work plan for an release to site ditches related to an on-site oil/water separator was approved, and soil removal completed in October 2012. 8 tons of soil were removed. Based on sampling results, DEQ determined in September 2012 that no further action is necessary in this area. Results of Sites 1, 2, 3, and 11 performance monitoring were presented in an October 2011 report (performance monitoring event #2). At Sites 1, 2, 3 (collectively Site 2), no exceedances of cleanup levels were observed. At Site 11, vinyl chloride was elevated at 3 locations to a maximum of 29 ug/L. In December 2011, DEQ reviewed a revised Investigation Report that presented the results of additional sampling in the ditch segments impacted by the oil/water separator release at the site. Based on the results from August 2011 sampling, DEQ concluded that residual contamination from the separator release does not exceed risk-based screening values. No further action is necessary as documented in a 12/14/11 letter to the Guard. In September 2017 DEQ concurred with ANG's No Further Remedial Action Planned (NFRAP) determination for Sites 1, 2, 3, and 11. this followed extensive work to investigate and clean up chlorinated solvent plumes at the based. A PA was completed in 2016, and site investigation is planned for 2018 to assses whether perfluorinated compounds associated with AFFF storage and use has impacted base environmental media.

NARR ID: 5732932
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Past operating practices, spills, and releases from underground tanks. Not reported

NARR ID: 5732933
NARR Code: Media Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Media Contamination
NARR Comments: Soil, sediments, and groundwater.

NARR ID: 5732934
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: DHAFLEY
Updated Date: 07/17/2008
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Site is located within approximately 1 mile of the City of Portland's Columbia South Shore Wellfield. The water table depth varies across the site from about 6 to 15 feet, and groundwater flow direction appears to vary, depending on the season and the level of the

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Columbia Slough. Shallow groundwater in the Overbank Deposits aquifer has been impacted, but the underlying Columbia Sand Aquifer has not. Primary pathways of concern hypotentical groundwater ingestion (there is no current use of shallow groundwater in the site area), and vapor intrusion into site buildings. With the 2007 cleanup of Site 4 ditches, significant ecological exposure is not likely.

NARR ID: 5732935
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: DHAFLEY
Updated Date: 09/19/2017
Decode for NarcdID: Remedial Action
NARR Comments: Remedial actions to date have included: 1. Treatment of soil and groundwater at the Site 11 oil/water separator; 2. Removal of contaminated soil from near the current Building 430; 3. Removal of tanks and contaminated soil at the Site 9 tank farm; 4. In-situ treatment of VOC contamination at Sites 1,2,3 (referred to as Site 2) and Site 11 using a chemical oxidant; 5. Removal of contaminated sediments from Site 4 ditches; 6. Remediation of VOCs at Site 11 using enhanced in-situ bioremediation (emulsified oil); and 7. Remediation of VOCs at Sites 1, 2, and 3 using enhanced in-situ bioremediation (emulsified oil and EHC).

NARR ID: 5732936
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: DHAFLEY
Updated Date: 09/19/2017
Decode for NarcdID: Health Threats
NARR Comments: Most site issues have been resolved as of 2017. Investigation of perfluorinated compounds will move forward.

NARR ID: 5753624
NARR Code: 1922
Created By: DHAFLEY
Created Date: 10/09/2011
Updated By: DHAFLEY
Updated Date: 11/15/2018
Decode for NarcdID: Current Site Summary Statement
NARR Comments: As of October 2011, remedial action at most site areas has been completed. Remaining site work includes post-treatment groundwater monitoring at Sites 1, 2, 3 and 11, and work to address petroleum releases at an on-site diesel generator and in an unlined ditch near the fueling area oil/water separator. In December 2011 DEQ reviewed and approved a report for the oil/water separator ditch release. The report presented the results of ditch sampling and risk screening, and concluded that residual contamination from the release does not pose a significant risk to public health or the environment. Semi-annual monitoring in the Site 2 and 11 areas is ongoing. In September 2012, DEQ determined that no further action is necessary in the Building 433 diesel spill area. Also in fall 2012, DEQ reviewed and approved a work plan for additional investigation in the so-called Surplus Area, a portion of the ANG site that is not being used by the Guard and will apparently be returned to the Port of

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Portland. Soil and groundwater under the approved plan is pending. Leaking sewer have also been identified as a concern in the southern site. The Guard is presently seeking funding for sewer repair and related investigation work under DEQ. April 2013. Post-treatment monitoring indicates that groundwater contaminants in the Sites 1,2,3, and 11 areas are below remedial action levels. ANG's consultant has requested proceeding to NFA. DEQ is in general agreement, but has requested one additional round of sampling for two wells to confirm contaminant trends. Based on April 2013 sampling results, DEQ has deterimined that Site 1, 2, 3, and 11 treatment and monitoring is complete. Surplus area sampling has been completed, and generally identified no or low levels of contamination. A modest amount of followup investigation has been requested. Following additional sampling, soil in a low-lying portion of the Surplus with elevated PAHs was covered with a minimum of two feet of clean fill as part of ditch abandonment activity. Soil from the <quot>dogleg<quot> portion of the soil stockpile remains on-site, and has modestly elevated PAHs. Off-site disposal of the soil at a Subtitle D landfill is pending. A summary of Surplus work is presented in the October 2013 Final Phase II EBS Site Assessment Report received by DEQ. A work plan for closeout activities at the Portland ANG site under the Environmental Restoration Program/DSMOA with the Guard has been approved. Closure will include all of the so-called Portland ANG <quot>Sites<quot> including Sites 1, 2,3, and 11 where solvent plumes were present. Closure will not include <quot>side<quot> projects with Portland ANG including assessment of impacts associated with leaking sewers (soon to be replaced), and an oil/water separator which will be upgraded. A final work plan for investigation activities at the former vehicle maintenance area (Building 188) has been received. Sampling is expected to take place in April or May 2013. Update: sampling has been completed, and no significant contamination was detected. A Revised Final Site Investigation Report for Building 188 was approved by DEQ in December 2013. (May 2014, DJH). DEQ was contacted regarding a jet fuel release (spill), and completed a site visit. A localized of perhaps 40 gallons of fuel occurred. ANG has sampled the impacted (soil) area, and results are pending. The spill will be addressed through DEQ's Cleanup Program. Separately, repair of the on-site sanitary sewer system has begun, and a RFP will be issued shortly by the Guard for site-wide closure activities under the Environmental Restoration Program. (June 2016, DJH). Site closure for all DSMOA investigation/cleanup areas is ongoing, with a final closure document to be submitted to DEQ in 2016. Only minor contaminant issues remain, the most notable being a pending investigation (2017) by the Guard to assess whether perfluorinated compounds have been released onsite associated with use of flame retardant chemicals. (February 2017, DJH). Closure report for Sites 1, 2, 3, & 11 received by DEQ and currently under review. September 2017, DJH). DEQ issues a letter concurring with ANG's NFRAP determination for Sites 1, 2, 3, 11. SI-level investigation of perfluorinated compounds will occur in early 2018. April 2018, DJH. PFAS investigation work plan (Phase III) finalized and submitted to DEQ April 2018. Multi-media (soil, groundwater, stormwater, and sediment) sampling was completed by contractor in summer 2018. Results received in October, and plans for follow-up investigation (SI) by DOD are pending. November 2018. PFAS detected in soil, sediment, surface water, and groundwater. Results presented in Site Inspection Report (October 2018). Followup investigation by Guard

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

currently being planned.

Administrative Action:
Action ID: 9463
Region: Northwestern Region
Complete Date: 07/16/2008
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/07/2009
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Partial No Further Action
Further Action: Medium
Comments: Not reported

Action ID: 9463
Region: Northwestern Region
Complete Date: 07/27/2009
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/27/2009
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Partial No Further Action
Further Action: Low
Comments: Not reported

Action ID: 9415
Region: Northwestern Region
Complete Date: 04/24/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/09/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: CONFIRMATION SAMPLING
Further Action: 0
Comments: Not reported

Action ID: 9491
Region: Northwestern Region
Complete Date: 10/26/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/17/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: 0
Comments: Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Action ID: 9413
Region: Northwestern Region
Complete Date: 09/19/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/10/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Closeout activities on completed project
Further Action: 0
Comments: Not reported

Action ID: 9463
Region: Northwestern Region
Complete Date: 09/19/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/19/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Partial No Further Action
Further Action: 0
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 10/19/2018
Rank Value: Not reported
Cleanup Flag: False
Created Date: 11/15/2018
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: High-Medium
Comments: Not reported

Action ID: 9484
Region: Northwestern Region
Complete Date: 01/01/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: Not reported
Comments: Not reported

Action ID: 9429

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Region: Northwestern Region
Complete Date: 07/01/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: Not reported
Comments: Not reported

Action ID: 9491
Region: Northwestern Region
Complete Date: 02/01/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: Not reported
Comments: Not reported

Action ID: 9491
Region: Northwestern Region
Complete Date: 12/30/2002
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: 0
Comments: Not reported

Action ID: 9491
Region: Northwestern Region
Complete Date: 06/28/2002
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: 0
Comments: Not reported

Action ID: 9442
Region: Northwestern Region

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Complete Date: 11/04/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: Not reported
Comments: Not reported

Action ID: 9440
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Letter Agreement
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Northwestern Region
Complete Date: 01/22/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9439
Region: Northwestern Region
Complete Date: 01/22/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9517
Region: Northwestern Region
Complete Date: 01/06/1997

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SRS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 05/21/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 05/21/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9428
Region: Not reported
Complete Date: 06/20/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Extension requested by owner/operator
Further Action: Not reported
Comments: Not reported

Action ID: 9430
Region: Not reported
Complete Date: 06/27/1996
Rank Value: 0

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Petition or request granted
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 09/15/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 09/15/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9499
Region: Northwestern Region
Complete Date: 09/15/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9503
Region: Northwestern Region
Complete Date: 09/15/1995
Rank Value: 0
Cleanup Flag: False

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation/Feasibility Study recommended
Further Action: High-Medium
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 09/15/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 09/15/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9468
Region: Not reported
Complete Date: 06/04/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA PA1/SI1
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Headquarters
Complete Date: 02/12/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: Not reported
Comments: Not reported

Action ID: 9423
Region: Northwestern Region
Complete Date: 11/21/2002
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/31/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Ecological Risk Assessment
Further Action: 0
Comments: Not reported

Action ID: 9486
Region: Northwestern Region
Complete Date: 01/02/2001
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/30/2003
Decode for AgencyID: Department of Environmental Quality

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RISK ASSESSMENT
Further Action: 0
Comments: Not reported

Action ID: 9494
Region: Northwestern Region
Complete Date: 03/05/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/10/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RECORD OF DECISION
Further Action: 0
Comments: Not reported

Action ID: 9491
Region: Northwestern Region
Complete Date: 10/01/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/10/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: 0
Comments: Not reported

Action ID: 9469
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/10/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 132688
Operation Status: Active
Common Name: Oregon Air National Guard Base
Yrs of Operation: 1940s to present
Comments: Not reported
Updated Date: 09/14/1995
Updated By: gmw
Decode for OpstatID: Active

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Operations SIC Id: 196324
SIC Code: 9711
Created By: Not reported
Created Date: 12/17/2002

LF:
Permit Number: 1536
Facility Id: 112214
Facility Telephone: 503-335-5000
Facility Telephone 2: Not reported
Lat/Long: 45.5742 / -122.5957
Solid Waste Class: SWLA
Solid Waste Type: Land Disposal
Date Opened: 11/22/2013
End Date: Not reported
Date Closed: Not reported
Permit Status: Withdrawn
Organization: Oregon Air National Guard
Contact Name: Paul Fitzgerald
Affil Start Date: 11/22/2013
Mailing Address: 6801 NE Cornfoot Rd
Mailing City: Portland
Mailing State: OR
Mailing Zip: 97218-2743

AST:
Facility Id: 033539
Hazardous Substance: AVGAS
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: CHRISTOPHER
Direct Site Phone: 5033354421
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 033539
Hazardous Substance: DIESEL FUEL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: CHRISTOPHER
Direct Site Phone: 5033354421
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 033539
Hazardous Substance: GASOLINE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: CHRISTOPHER
Direct Site Phone: 5033354421
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 033539
Hazardous Substance: HYDRAULIC FLUID
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: CHRISTOPHER
Direct Site Phone: 5033354421
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 033539
Hazardous Substance: OXYGEN LIQUID
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: CHRISTOPHER
Direct Site Phone: 5033354421
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Is Explosive: No
Status: Not reported

Facility Id: 033539
Hazardous Substance: USED MOTOR OIL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: CHRISTOPHER
Direct Site Phone: 5033354421
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

VCS:
ECS Site ID: 1372
Facility Size: Approx. 245 acres
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Start Date: 04/05/2018
End Date: 10/19/2018
Facility Status: Active
Program: VCP
Latitude: 45.5749
Longitude: -122.5914

OR SPILLS:
Facility ID: 2017-0504
Incident Status: Closed
Material: Oil - Transformer
Quantity: 141
Unit of Measure: Gallons
Release Date: 02/08/2017
Description: Oregon Air National Guard reporting 141 gallon release of non-pcb oil from a transformer due to damage sustained when heavy equipment hit it.
Lat/Long: 45.57561 / -122.59850
Source: Electrical Equipment
Media: Soil, Surface Water
Responsible Company: Oregon Air National Guard - 142nd Fighter Wing
Responsible Address: 6801 NE Cornfoot Rd.
Responsible City,St,Zip: Portland, OR 97218

Facility ID: 2004-0728
Incident Status: Archive
Material: Not reported
Quantity: 200
Unit of Measure: Gallons
Release Date: 02/06/2004
Description: Product line from AST/Dispenser broke. RP assumed it went to the Oil

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Water Seperator but the capacity was not great enough to handle it.
Fuel bypassed OWS and went into ditch/storm water detention pond.
There is reportedly no free product as all fuel soaked into the soil
on the way to the detention pond.
Lat/Long: 45.5742 / -122.5957
Source: AST
Media: Coding for the PS/BC Oil Spill Database
Responsible Company: Oregon Air National Guard
Responsible Address: 6801 NE Cornfoot Rd
Responsible City,St,Zip: Portland, OR 97218-2743

Facility ID: 2004-0728
Incident Status: Archive
Material: Not reported
Quantity: 200
Unit of Measure: Gallons
Release Date: 02/06/2004
Description: Product line from AST/Dispenser broke. RP assumed it went to the Oil
Water Seperator but the capacity was not great enough to handle it.
Fuel bypassed OWS and went into ditch/storm water detention pond.
There is reportedly no free product as all fuel soaked into the soil
on the way to the detention pond.
Lat/Long: 45.5742 / -122.5957
Source: AST
Media: Non-saturated soil, rock, etc.
Responsible Company: Oregon Air National Guard
Responsible Address: 6801 NE Cornfoot Rd
Responsible City,St,Zip: Portland, OR 97218-2743

HAZMAT:

Responsble Party:	UNKNOWN
RP Company:	Not reported
RP Address:	Not reported
RP City,St,Zip:	Not reported
Facility ID:	020001
OERS Number:	Not reported
Dept Rsp:	HAZMAT TEAM PORTLAND - 06
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	HAZMAT TEAM PORTLAND - 06
Date Added:	06/05/2002
Unit:	Not reported
Agency Phone:	5038233856
Osfm Incident Report Number:	020001
Dept. Responding:	HAZMAT TEAM PORTLAND - 06
Person Making Report:	STEVEN A DANNA
Title:	LTH
Agency:	HAZMAT TEAM PORTLAND - 06
Phone:	5038233856
Date Of Incident:	01/14/2002
Call Time:	12:44:00 PM
In Route:	12:48:00 PM
Arrival:	12:57:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	2:45:00 PM
Dist Of Incident:	HAZMAT TEAM PORTLAND - 06
Were State Resources Used?:	False
Was Oers Notified?:	True
Oers Number:	Not reported
Team Number:	HM06
Agency Report Number:	FP02002119
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Private Structure
Area Type:	Commercial
Responsible Party(Ies):	UNKNOWN
Company:	Not reported
Respcontact:	Not reported
Address:	Not reported
Resp City:	Not reported
Resp State:	Not reported
Resp ZipCode:	Not reported
Phone:	Not reported
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Operation Performed:	During Delivery/Shipment
Cause:	Unknown
Vehicle And Cargo:	0
Fixed Property:	0
Total Loss:	$0.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	4455
Chemical Id:	35430
Incident Id:	020001
Chemical Name:	UNKNOWN CHEMICAL
UNNA:	Not reported
Amount At Risk:	0
Amount Released:	0
Amount Measured:	0
Biological:	False
Radiological:	False

Chemical Id:	35430
Chemical Name:	UNKNOWN CHEMICAL
Hazardous Ingredient:	UNKNOWN CHEMICAL
Hazardous Class 1:	9.0
Hazardous Class 2:	Not reported
Hazardous Rank:	2
Case Number:	Not reported
UNNA Number:	Not reported
EPA Pest Reg:	Not reported
EHA Chem:	Not reported
PSM Chem:	Not reported
CAA 112R Chem:	Not reported

Method:

Method Used Id:	3644
Incident Id:	020001
Identity Method:	5

Released:

Release Behavior Id:	6619
Incident Id:	020001
Behavior:	10

Narrative:

Narrative Id:	1124
Incident Id:	020001
Incident Narrative:	HM06 CALLED TO PORTLAND AIR BASE ON A SUSPICIOUS WHITE POWDER. HM06

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

ARRIVED AND WAS BRIEFED BY THE PORT OF PORLAND FIRE DEPT. AND THE PORTLAND AIR BASE COMMANDERS. WE WERE INFORMED AN ENVELOPE WAS DELIVERED TO A SECRETARY FROM MCI COMMUNICATIONS. INITIAL REPORTS WERE POWDER SPILLED OUT OF THE PACKAGE ON 1-10-02. THE PACKAGE WAS NOW IN THE RECYCLING. HM06 SUITED UP TWO MEMBERS IN LEVEL "C". WE ALSO SENT ONE PORT OF PORTLAND FF IN LEVEL "C" TO INVESTIGATE AND SHOW US THE LOCATION OF THE OFFICE SPACE AND THE RECYCLING. HM06 FOUND THE ENVELOPE AND FOUND NOTHNG TO SAMPLE. WE INVESTIGATED THE OFFICE SPACE AND FOUND NOTHING TO SAMPLE. UPON INTERVIEWS WITH COMPLAINTENT AND WITNESSES WE SUMISED THE DUST MOST LIKELY CAME FROM THE PACKING TAPE. WE ALSO FOUND NO REASON FOR THIS PERSON TO BE A TARGET. THIS PACKAGE WAS A NORMAL DELIVERY FROM A KNOWN SHIPPER. USING ALL THE INFORMATION WE DETERMINED THIS WAS PROBABLY A MISTAKEN CALL.

Incident Date: 1/14/2002

Responsble Party:	COLONEL NOEL KEMMERI
RP Company:	OR AIR NATIONAL GUAR
RP Address:	6801 NE CORNFOOT RD
RP City,St,Zip:	PORTLAND, OR 97218-2797
Facility ID:	930106
OERS Number:	Not reported
Dept Rsp:	HAZMAT TEAM PORTLAND - 06
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	HAZMAT TEAM PORTLAND - 06
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	0003354889
Osfm Incident Report Number:	930106
Dept. Responding:	HAZMAT TEAM PORTLAND - 06
Person Making Report:	DAVID SWICKARD
Title:	CHIEF
Agency:	HAZMAT TEAM PORTLAND - 06
Phone:	0003354889
Date Of Incident:	03/05/1993
Call Time:	1:47:00 PM
In Route:	12:00:00 AM
Arrival:	1:48:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	2:29:00 PM
Dist Of Incident:	HAZMAT TEAM PORTLAND - 06
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	HM06
Agency Report Number:	F-93-55
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Public Structure
Area Type:	Industrial
Responsible Party(Ies):	COLONEL NOEL KEMMERI
Company:	OR AIR NATIONAL GUAR
Respcontact:	Not reported
Address:	6801 NE CORNFOOT RD
Resp City:	PORTLAND
Resp State:	OR
Resp ZipCode:	97218-2797
Phone:	0003555000
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	False
Operation Performed:	In Route
Cause:	Unknown
Vehicle And Cargo:	3
Fixed Property:	0
Total Loss:	$3.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Latitude: Not reported
Longitude: Not reported
Hazmat Disposition: Not reported

Chemical:
Chemical Info: 6505
Chemical Id: 35430
Incident Id: 930106
Chemical Name: UNKNOWN CHEMICAL
UNNA: Not reported
Amount At Risk: 0
Amount Released: 0
Amount Measured: 0
Biological: False
Radiological: False

Chemical Id: 35430
Chemical Name: UNKNOWN CHEMICAL
Hazardous Ingredient: UNKNOWN CHEMICAL
Hazardous Class 1: 9.0
Hazardous Class 2: Not reported
Hazardous Rank: 2
Case Number: Not reported
UNNA Number: Not reported
EPA Pest Reg: Not reported
EHA Chem: Not reported
PSM Chem: Not reported
CAA 112R Chem: Not reported

Method:
Method Used Id: 1745
Incident Id: 930106
Identity Method: 6

Narrative:
Narrative Id: 4142
Incident Id: 930106
Incident Narrative: UNKNOWN SPECIFICS ON SPILL SUSPECTED LEAK IN GOVERNMENT VEHICLE LIQUID SEEN FLOATING IN STORM SEWER AND REPORTED LIQUID WAS ID BY ABSORBANT METHOD PICKED UP AND DISPOSED OF PROPERTY
Incident Date: 3/5/1993

OR AIRS:
Year: Not reported
Emission: Not reported
Permit Number: 26-3254-ST-01
Permit Type: Standard ACDP
Expiration Date: 10/01/2014
Source ID: Not reported
Issue Date: 11/24/2009
NAICS Code: 928110
Is Primary: Not reported
SIC Code: 9711
Is Primary: Not reported
Latitude: 45.5749

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Longitude:	-122.5914
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

HSIS:

Facility ID:	033539
Department Or Division Of Company:	PORTLAND ANG BASE
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	928110
NAICS Desc 1:	NATIONAL SECURITY
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	JENIFER PARDY
Business Phone:	5033355000
Mailing Address:	6801 NE CORNFOOT RD
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	1176
Day Phone:	5033354890
Placard:	Y
Fire Dept Code:	0298
FD:	PORTLAND AIREPORT F&R
Sprinkler System:	Y
Emergency Contact:	FIRE CHIEF
Emergency Procedure:	FIRE DEPT BLDG 180
Business Type:	NATIONAL SECURITY
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	FREON 22
Physical Description:	GAS
Case Number:	75456
Facility Id:	033539
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	CRYOGENIC CONDITIONS
Temperature of The Hazardous Substance Code:	7
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	CHLORODIFLUOROMETHANE
United Nations/north America 4 Digit Class Number:	1018
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	FREON 22
United Nations/north America 4 Digit Class Number:	1018
Chemical Abstract Service Identifier Number:	75456

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Y
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	GASOLINE
Physical Description:	LIQUID
Case Number:	8006619
Facility Id:	033539
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1203
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	GASOLINE
United Nations/north America 4 Digit Class Number:	1203
Chemical Abstract Service Identifier Number:	8006619

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Y
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	AEROSOL CANS
Physical Description:	GAS
Case Number:	Not reported
Facility Id:	033539
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	F
Description:	CAN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	VARIOUS FLAMMABLE LIQUIDS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	AEROSOL CANS
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	HYDRAULIC FLUID
Physical Description:	LIQUID
Case Number:	0000000
Facility Id:	033539
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	F
Temperature Description:	CAN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	1270
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	HYDRAULIC FLUID
United Nations/north America 4 Digit Class Number:	1270
Chemical Abstract Service Identifier Number:	0000000

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	LUBE OIL
Physical Description:	LIQUID
Case Number:	64742650
Facility Id:	033539
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	F
Description:	CAN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1270
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Combustible Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.5
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	LUBE OIL
United Nations/north America 4 Digit Class Number:	1270
Chemical Abstract Service Identifier Number:	64742650

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Combustible Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.5
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	NITROGEN
Physical Description:	GAS
Case Number:	7727379
Facility Id:	033539
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	21
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Chemical Abstract Service Identifier Number:	7727379

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	033539
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN LIQUID
Physical Description:	LIQUID
Case Number:	7782447
Facility Id:	033539
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	CRYOGENIC CONDITIONS
Temperature of The Hazardous Substance Code:	7
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1073
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Oxidizers
Third Hazardous Class Code For Chemical:	Acute Health Hazard
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	5.1
Hazard Class 3 Of The Chemical:	6.3

Chemical:

Chemical Name:	OXYGEN LIQUID
United Nations/north America 4 Digit Class Number:	1073
Chemical Abstract Service Identifier Number:	7782447

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Oxidizers
Third Hazardous Class Code For Chemical:	Acute Health Hazard
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	5.1
Hazard Class 3 Of The Chemical:	6.3
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	PROPYLENE GLYCOL
Physical Description:	LIQUID
Case Number:	57556
Facility Id:	033539
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	PROPYLENE GLYCOL
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PROPYLENE GLYCOL
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	57556

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	USED MOTOR OIL
Physical Description:	LIQUID
Case Number:	000000
Facility Id:	033539
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	USED MOTOR OIL
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	000000

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	N
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	WASTE LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	7664939
Facility Id:	033539
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	7664939

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Y
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Y

Chemical Name:	AVGAS
Physical Description:	LIQUID
Case Number:	8008206
Facility Id:	033539
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	41
Max Amt Possessed During Year CD:	42
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	O
Temperature Description:	TOTEBIN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500,000-749,999
Description Of The Avg Qnty Code:	250,000-499,999
Most Hazardous Ingridient:	KEROSENE
United Nations/north America 4 Digit Class Number:	1223
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	AVGAS
United Nations/north America 4 Digit Class Number:	1223
Chemical Abstract Service Identifier Number:	8008206

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	BREATHING AIR
Physical Description:	GAS
Case Number:	7727379
Facility Id:	033539
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	NITROGEN
United Nations/north America 4 Digit Class Number:	1002
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	BREATHING AIR
United Nations/north America 4 Digit Class Number:	1002
Chemical Abstract Service Identifier Number:	7727379

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	CARBON DIOXIDE
Physical Description:	GAS
Case Number:	124389
Facility Id:	033539
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1013
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1013
Chemical Abstract Service Identifier Number:	124389

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	033539
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	DIESEL FUEL
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	0068334305

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	033539
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Chemical Abstract Service Identifier Number:	74862

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NPDES:

WQ File Nbr:	122687
Legal Name:	ENGINEERING/REMEDIATION RESOURCES GROUP INC.
Region:	Not reported
Pri SIC:	1623
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12C
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	123448
Legal Name:	GLEN/MAR CONSTRUCTION, INC.
Region:	Not reported
Pri SIC:	1623
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12C
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	107654
Legal Name:	OREGON MILITARY DEPARTMENT
Region:	Not reported
Pri SIC:	9711
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12C
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	107654
Legal Name:	OREGON MILITARY DEPARTMENT
Region:	Not reported
Pri SIC:	9711
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12T
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported
WQ File Nbr:	107654
Legal Name:	OREGON MILITARY DEPARTMENT
Region:	Not reported
Pri SIC:	9711
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12Z
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported
WQ File Nbr:	107654
Legal Name:	OREGON MILITARY DEPARTMENT
Region:	Not reported
Pri SIC:	9711
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN17
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported
WQ File Nbr:	121788
Legal Name:	TELOS CORPORATION
Region:	Not reported

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Pri SIC:	1623
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12C
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	107654
Legal Name:	OREGON MILITARY DEPARTMENT
Region:	NWR
Pri SIC:	9711
Facility Type:	DEPARTMENT OF DEFENSE
Latitude:	45.5749
Longitude:	-122.5914
Category:	IND
Permit Type:	GEN17A
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Industrial Wastewater; NPDES wash water
Expiration Date:	01/31/2003
EPA Number:	ORG750001
UIC Facility:	False
Admin Agent:	NW Region Office
Last Action Date:	09/16/2002
Permit Writer:	Not reported
Compliance Inspector:	Gneckow
DMR Reviewer:	Gneckow
Application Number:	985059
Class:	MINOR
Start Date:	08/11/1998
Region Decode:	North West Region

WQ File Nbr:	107654
Legal Name:	OREGON MILITARY DEPARTMENT
Region:	NWR
Pri SIC:	9711
Facility Type:	DEPARTMENT OF DEFENSE
Latitude:	45.5749
Longitude:	-122.5914
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR800059
UIC Facility:	False
Admin Agent:	NW Region Office
Last Action Date:	08/01/2017
Permit Writer:	Kennedy
Compliance Inspector:	Kennedy
DMR Reviewer:	Kennedy
Application Number:	956885
Class:	MINOR
Start Date:	02/10/2000
Region Decode:	North West Region

WQ File Nbr:	126128
Legal Name:	Sealaska Constructors, LLC
Region:	NWR
Pri SIC:	1542
Facility Type:	NONRESIDENTIAL CONSTRUCT, NEC
Latitude:	45.576
Longitude:	-122.594
Category:	STM
Permit Type:	GEN12C
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES construction more than 1 acre disturbed ground
Expiration Date:	12/14/2020
EPA Number:	ORR10F553
UIC Facility:	False
Admin Agent:	NW Region Office
Last Action Date:	11/26/2018
Permit Writer:	Gneckow
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	952896
Class:	MINOR
Start Date:	11/26/2018
Region Decode:	North West Region

OR UIC:

UIC Well #:	1
Type:	5X26
Type Description:	Aquifer Remediation Related
Status:	Active
UIC Number:	10184
Facility Status:	Registered & RA
Lat/Long:	45.574001 / -122.596

UIC Well #:	2
Type:	5X26
Type Description:	Aquifer Remediation Related
Status:	Active
UIC Number:	10184
Facility Status:	Registered & RA
Lat/Long:	45.574001 / -122.596

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

UIC Well #: 3
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 4
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 5
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 6
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 7
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 8
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 9
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 10

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 11
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 12
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 13
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 14
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 15
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 16
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 17
Type: 5X26

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 18
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 19
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 20
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 21
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 22
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 23
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

UIC Well #: 24
Type: 5X26
Type Description: Aquifer Remediation Related

OREGON AIR NATIONAL GUARD BASE (Continued) **S105527699**

Status: Active
UIC Number: 10184
Facility Status: Registered & RA
Lat/Long: 45.574001 / -122.596

A10 **US DOD USAF PORTLAND ANG AFB OREGON** **TRIS** **1008341263**
Target **6801 NE CORNFOOT RD** **97218SRFRC681NE**
Property **PORTLAND, OR 97218**

Site 10 of 23 in cluster A

Actual: **22 ft.**

TRIS:

Click this hyperlink while viewing on your computer to access
1 additional US_TRIS: record(s) in the EDR Site Report.

A11 **PORTLAND AIR NATIONAL GUARD BASE** **DOCKET HWC** **1018161510**
Target **6801 NE CORN FOOT RD** **N/A**
Property **PORTLAND, OR 97208**

Site 11 of 23 in cluster A

Actual: **22 ft.**

DOCKET HWC:

Agency:	AIR FORCE
Facility ID:	OR1570024264
Reporting Mechanism:	CERCLA 103
Status:	On MDL

A12 **OR HAZMAT** **S105013757**
Target **6801 NE CORNFOOT RD BLDG 170** **N/A**
Property **PORTLAND, OR 97218**

Site 12 of 23 in cluster A

Actual: **22 ft.**

HAZMAT:

Responsble Party:	LT COL BUKSA
RP Company:	OR AIR NATIONAL GUAR
RP Address:	6801 NE CORNFOOT RD
RP City,St,Zip:	PORTLAND, OR 97218-2797
Facility ID:	950091
OERS Number:	Not reported
Dept Rsp:	HAZMAT TEAM PORTLAND - 06
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported

(Continued) **S105013757**

Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	HAZMAT TEAM PORTLAND - 06
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	0003354890
Osfm Incident Report Number:	950091
Dept. Responding:	HAZMAT TEAM PORTLAND - 06
Person Making Report:	DAVID G SWICKARD
Title:	FC
Agency:	HAZMAT TEAM PORTLAND - 06
Phone:	0003354890
Date Of Incident:	02/17/1995
Call Time:	2:07:00 PM
In Route:	12:00:00 AM
Arrival:	2:09:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	3:50:00 PM
Dist Of Incident:	HAZMAT TEAM PORTLAND - 06
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	HM06
Agency Report Number:	F-95-79
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Public Structure
Area Type:	Commercial
Responsible Party(Ies):	LT COL BUKSA
Company:	OR AIR NATIONAL GUAR
Respcontact:	Not reported
Address:	6801 NE CORNFOOT RD
Resp City:	PORTLAND
Resp State:	OR
Resp ZipCode:	97218-2797
Phone:	Not reported

(Continued) **S105013757**

Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	Not reported
Cause:	Improper Storage
Vehicle And Cargo:	0
Fixed Property:	0
Total Loss:	$0.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	3152
Chemical Id:	29164
Incident Id:	950091
Chemical Name:	THINNER
UNNA:	Not reported
Amount At Risk:	165
Amount Released:	1
Amount Measured:	2
Biological:	False
Radiological:	False

Chemical Id:	29164
Chemical Name:	THINNER
Hazardous Ingredient:	LIGHT PETROLEUM DISTILLATE
Hazardous Class 1:	3.3
Hazardous Class 2:	6.3
Hazardous Rank:	2
Case Number:	64742478
UNNA Number:	1993
EPA Pest Reg:	Not reported
EHA Chem:	Not reported
PSM Chem:	Not reported
CAA 112R Chem:	Not reported

Method:

Method Used Id:	7103
Incident Id:	950091
Identity Method:	1

Released:

Release Behavior Id:	1699
Incident Id:	950091
Behavior:	1

(Continued) **S105013757**

Narrative:
Narrative Id: 5243
Incident Id: 950091
Incident Narrative: RECEIVED REPORT OF SMELL OF PAINT THINNER IN VACINITY OF HAZMAT STORAGE BLD. FOUND 3 EACH 55 GAL DRUMS OF PAINT THINNER INSIDE STORAGE BLDG. DRUMS WERE EXPANDED AND HAD VISIBLE LIQUID ON EXTERIOR SIDES. AREA WAS SECURED. ENTRY WAS MADE IN FULL FF TURNOUT
Incident Date: 2/17/1995

A13 **USAF ANG PORTLAND** **SEMS** **1015731785**
Target **142 FIG/EM 6801 NE CORNFOOT RD** **RCRA-LQG** **OR1570024264**
Property **PORTLAND, OR 97218** **PADS**

Site 13 of 23 in cluster A

Actual:
22 ft.

SEMS:
Site ID: 1001210
EPA ID: OR1570024264
Cong District: 03
FIPS Code: 41051
Latitude: 45.595278
Longitude: -122.633056
FF: Y
NPL: Not on the NPL
Non NPL Status: Other Cleanup Activity: State-Lead Cleanup

SEMS Detail:
Region: 10
Site ID: 1001210
EPA ID: OR1570024264
Site Name: USAF ANG PORTLAND BASE
NPL: N
FF: Y
OU: 00
Action Code: DS
Action Name: DISCVRY
SEQ: 1
Start Date: 1987-09-01 04:00:00
Finish Date: 9/1/1987 4:00:00 AM
Qual: Not reported
Current Action Lead: EPA Perf

Region: 10
Site ID: 1001210
EPA ID: OR1570024264
Site Name: USAF ANG PORTLAND BASE
NPL: N
FF: Y
OU: 00
Action Code: OO
Action Name: SITE REASS
SEQ: 1
Start Date: 1999-06-30 04:00:00
Finish Date: 9/13/2000 4:00:00 AM
Qual: L
Current Action Lead: EPA Perf

USAF ANG PORTLAND (Continued) **1015731785**

Region:	10
Site ID:	1001210
EPA ID:	OR1570024264
Site Name:	USAF ANG PORTLAND BASE
NPL:	N
FF:	Y
OU:	00
Action Code:	SI
Action Name:	SI
SEQ:	1
Start Date:	1990-06-04 04:00:00
Finish Date:	6/4/1990 4:00:00 AM
Qual:	H
Current Action Lead:	Fed Fac

Region:	10
Site ID:	1001210
EPA ID:	OR1570024264
Site Name:	USAF ANG PORTLAND BASE
NPL:	N
FF:	Y
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	1990-06-04 04:00:00
Finish Date:	6/4/1990 4:00:00 AM
Qual:	H
Current Action Lead:	Fed Fac

Region:	10
Site ID:	1001210
EPA ID:	OR1570024264
Site Name:	USAF ANG PORTLAND BASE
NPL:	N
FF:	Y
OU:	00
Action Code:	VA
Action Name:	OTHR CLEANUP
SEQ:	1
Start Date:	2000-10-13 04:00:00
Finish Date:	Not reported
Qual:	Not reported
Current Action Lead:	St Ovrsght

RCRA-LQG:

Date form received by agency:	12/31/2017
Facility name:	USAF ANG PORTLAND
Facility address:	142 FIG/EM 6801 NE CORNFOOT RD PORTLAND, OR 97218-2797
EPA ID:	OR1570024264
Mailing address:	6801 NE CORNFOOT ROAD PORTLAND, OR 97218-2797
Contact:	ROGER C REIN
Contact address:	6801 NE CORNFOOT ROAD PORTLAND, OR 97218-2797

USAF ANG PORTLAND (Continued) **1015731785**

Contact country: US
Contact telephone: 503-335-4462
Contact email: ROGER.REIN@US.AF.MIL
EPA Region: 10
Land type: Private
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name: OREGON AIR NATIONAL GUARD
Owner/operator address: 6801 NE CORNFOOT ROAD
PORTLAND, OR 97218
Owner/operator country: US
Owner/operator telephone: 503-335-4462
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Federal
Owner/Operator Type: Operator
Owner/Op start date: 12/31/2017
Owner/Op end date: Not reported

Owner/operator name: PORTLAND AIR NATIONAL GUARD
Owner/operator address: 6801 NE CORNFOOT RD
PORTLAND, OR 97218
Owner/operator country: US
Owner/operator telephone: 503-335-4462
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Federal
Owner/Operator Type: Owner
Owner/Op start date: 12/31/2017
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No

USAF ANG PORTLAND (Continued) **1015731785**

Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: NA
. Waste name: NA

Historical Generators:
Date form received by agency: 12/31/2016
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2015
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2015
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D003
. Waste name: A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.

. Waste code: D005
. Waste name: BARIUM

USAF ANG PORTLAND (Continued) **1015731785**

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 12/31/2014
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2013
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2013
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

USAF ANG PORTLAND (Continued) **1015731785**

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D003
. Waste name: A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D010
. Waste name: SELENIUM

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D043
. Waste name: VINYL CHLORIDE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING:

USAF ANG PORTLAND (Continued) **1015731785**

TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE LISTED IN F001, F004, OR F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: U080
. Waste name: METHANE, DICHLORO-

. Waste code: U148
. Waste name: MALEIC HYDRAZIDE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U248
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYL-BUTYL)-, & SALTS,

USAF ANG PORTLAND (Continued) **1015731785**

WHEN PRESENT AT CONCENTRATIONS OF 0.3% OR LESS

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2013
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D003
. Waste name: A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.

. Waste code: D004
. Waste name: ARSENIC

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

USAF ANG PORTLAND (Continued) **1015731785**

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: U002
. Waste name: ACETONE (I)

Date form received by agency: 12/31/2012
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2011
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2011
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN

USAF ANG PORTLAND (Continued) **1015731785**

THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D003
. Waste name: A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.

. Waste code: D005
. Waste name: BARIUM

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D043
. Waste name: VINYL CHLORIDE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT

USAF ANG PORTLAND (Continued) **1015731785**

MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 12/31/2010
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2009
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2009
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D003
. Waste name: A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.

. Waste code: D005
. Waste name: BARIUM

USAF ANG PORTLAND (Continued) **1015731785**

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D043
. Waste name: VINYL CHLORIDE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 12/31/2008
Site name: USAF ANG PORTLAND

USAF ANG PORTLAND (Continued) **1015731785**

Classification: Large Quantity Generator

Date form received by agency: 12/31/2007
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 12/31/2007
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 12/31/2006
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 12/31/2004
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 03/05/2004
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 01/01/2004
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 02/10/2003
Site name: USAF ANG PORTLAND
Classification: Small Quantity Generator

Date form received by agency: 03/04/2002
Site name: USAF ANG PORTLAND
Classification: Small Quantity Generator

Date form received by agency: 03/05/2001
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 03/01/2000
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 02/14/2000
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 02/26/1999
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

USAF ANG PORTLAND (Continued) **1015731785**

Date form received by agency: 02/05/1998
Site name: USAF ANG PORTLAND
Classification: Small Quantity Generator

Date form received by agency: 01/27/1997
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 03/01/1996
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 01/30/1996
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 01/19/1995
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 03/01/1994
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 02/23/1994
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Date form received by agency: 02/12/1993
Site name: USAF ANG PORTLAND
Classification: Large Quantity Generator

Biennial Reports:

Last Biennial Reporting Year: 2017

Annual Waste Handled:

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.
Amount (Lbs): 3027

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.
Amount (Lbs): 86

Waste code: D003

USAF ANG PORTLAND (Continued) **1015731785**

Waste name:	A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.
Amount (Lbs):	1171
Waste code:	D005
Waste name:	BARIUM
Amount (Lbs):	3910
Waste code:	D006
Waste name:	CADMIUM
Amount (Lbs):	8345
Waste code:	D007
Waste name:	CHROMIUM
Amount (Lbs):	4310
Waste code:	D008
Waste name:	LEAD
Amount (Lbs):	3861
Waste code:	D009
Waste name:	MERCURY
Amount (Lbs):	103
Waste code:	D018
Waste name:	BENZENE
Amount (Lbs):	1380
Waste code:	D035
Waste name:	METHYL ETHYL KETONE
Amount (Lbs):	4079
Waste code:	F003
Waste name:	THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs):	312
Waste code:	F005
Waste name:	THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs):	2700

USAF ANG PORTLAND (Continued) **1015731785**

Facility Has Received Notices of Violations:

Regulation violated:	Not reported
Area of violation:	Universal Waste - Small Quantity Handlers
Date violation determined:	10/01/2014
Date achieved compliance:	10/02/2014
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	12/30/2014
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported
Area of violation:	Generators - Pre-transport
Date violation determined:	10/01/2014
Date achieved compliance:	10/01/2014
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	12/30/2014
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported
Area of violation:	Generators - Pre-transport
Date violation determined:	10/01/2014
Date achieved compliance:	10/02/2014
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	12/30/2014
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported
Area of violation:	Universal Waste - Small Quantity Handlers
Date violation determined:	05/05/2011
Date achieved compliance:	05/19/2011
Violation lead agency:	State
Enforcement action:	NOTICE OF NONCOMPLIANCE
Enforcement action date:	06/01/2011
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

USAF ANG PORTLAND (Continued) **1015731785**

Regulation violated: Not reported
Area of violation: State Statute or Regulation
Date violation determined: 05/05/2011
Date achieved compliance: 05/19/2011
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 06/01/2011
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 03/01/2006
Date achieved compliance: 03/10/2006
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 03/30/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.35
Area of violation: Generators - General
Date violation determined: 08/24/2000
Date achieved compliance: 09/11/2000
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 02/28/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 1000
Final penalty amount: Not reported
Paid penalty amount: 1000

Regulation violated: FR - 40 CFR 262.34(a)(1)
Area of violation: Generators - General
Date violation determined: 08/24/2000
Date achieved compliance: 09/11/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 09/06/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.35

USAF ANG PORTLAND (Continued) **1015731785**

Area of violation: Generators - General
Date violation determined: 08/24/2000
Date achieved compliance: 09/11/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 09/06/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 262.34(c)(1)
Area of violation: Generators - General
Date violation determined: 08/24/2000
Date achieved compliance: 09/11/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 09/06/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.173
Area of violation: Generators - General
Date violation determined: 08/24/2000
Date achieved compliance: 09/11/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 09/06/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Records/Reporting
Date violation determined: 09/27/1994
Date achieved compliance: 12/31/1994
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/18/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Manifest

USAF ANG PORTLAND (Continued) **1015731785**

Date violation determined: 09/27/1994
Date achieved compliance: 12/31/1994
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/18/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Container Use and Management
Date violation determined: 09/27/1994
Date achieved compliance: 12/31/1994
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/18/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 09/27/1994
Date achieved compliance: 12/31/1994
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/18/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Preparedness and Prevention
Date violation determined: 09/27/1994
Date achieved compliance: 12/31/1994
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/18/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 09/27/1994

USAF ANG PORTLAND (Continued) **1015731785**

Date achieved compliance: 12/31/1994
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/18/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 10/01/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Universal Waste - Small Quantity Handlers
Date achieved compliance: 10/02/2014
Evaluation lead agency: State

Evaluation date: 10/01/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 10/01/2014
Evaluation lead agency: State

Evaluation date: 10/01/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 10/02/2014
Evaluation lead agency: State

Evaluation date: 05/05/2011
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: State Statute or Regulation
Date achieved compliance: 05/19/2011
Evaluation lead agency: State

Evaluation date: 05/05/2011
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Universal Waste - Small Quantity Handlers
Date achieved compliance: 05/19/2011
Evaluation lead agency: State

Evaluation date: 03/01/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 03/10/2006
Evaluation lead agency: State

Evaluation date: 03/01/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 12/06/2004
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported

USAF ANG PORTLAND (Continued) **1015731785**

Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/24/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 09/11/2000
Evaluation lead agency: State

Evaluation date: 09/27/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 12/31/1994
Evaluation lead agency: State

Evaluation date: 09/27/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Container Use and Management
Date achieved compliance: 12/31/1994
Evaluation lead agency: State

Evaluation date: 09/27/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Records/Reporting
Date achieved compliance: 12/31/1994
Evaluation lead agency: State

Evaluation date: 09/27/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Preparedness and Prevention
Date achieved compliance: 12/31/1994
Evaluation lead agency: State

Evaluation date: 09/27/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 12/31/1994
Evaluation lead agency: State

Evaluation date: 09/27/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 12/31/1994
Evaluation lead agency: State

PADS:
EPAID: OR1570024264
Facility name: USAF ANG PORTLAND
Facility Address: 6801 NE CORNFOOT RD
PORTLAND, OR 97218-2797
Facility country: US
Generator: Yes
Storer: No
Transporter: No
Disposer: No
Research facility: No
Smelter: No
Facility owner name: OREGON AIR NATIONAL GUARD

USAF ANG PORTLAND (Continued) **1015731785**

Contact title: Not reported
Contact name: ROGER C REIN
Contact tel: 503-335-4462
Contact extension: Not reported
Contact Email: Not reported
Mailing address: 142 MSG/EM, 6801 NE CORNFOOT RD
PORTLAND, OR 97218-2797
Mailing country: US
Cert. date: 03/20/2006

A14 **HEATING OIL TANK** **OR LUST** **S102590076**
Target **6801 NE CORNFOOT ROAD-ANG BASE** **N/A**
Property **PORTLAND, OR 97218**

Site 14 of 23 in cluster A

Actual: **22 ft.**

LUST:
Region: North Western Region
Facility ID: 26-88-0095
Cleanup Received Date: 11/17/1988
Cleanup Start Date: 11/04/1988
Cleanup Complete Date: 08/18/1995
Decode for Region: North West Region

A15 **OREGON AIR NATIONAL GUARD BASE** **OR RGA HWS** **S115336347**
Target **6801 NE CORNFOOT RD.** **N/A**
Property **PORTLAND, OR**

Site 15 of 23 in cluster A

Actual: **22 ft.**

RGA HWS:

2006	OREGON AIR NATIONAL GUARD BASE	6801 NE CORNFOOT RD.

A16 **PORTLAND AIR NATIONAL GUARD - NEW MAIN GATE** **FINDS** **1024708953**
Target **6801 NE CORNFOOT DR.** **ECHO** **N/A**
Property **PORTLAND, OR 97218**

Site 16 of 23 in cluster A

Actual: **22 ft.**

FINDS:

Registry ID: 110070503491

Environmental Interest/Information System
US National Pollutant Discharge Elimination System (NPDES) module of the Compliance Information System (ICIS) tracks surface water permits issued under the Clean Water Act. Under NPDES, all facilities that discharge pollutants from any point source into waters of the United States are required to obtain a permit. The permit will likely contain limits on what can be discharged, impose monitoring and reporting requirements, and include other provisions to ensure that the discharge does not adversely affect water quality.

PORTLAND AIR NATIONAL GUARD - NEW MAIN GATE (Continued) **1024708953**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1024708953
Registry ID: 110070503491
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110070503491

A17 **USAF OREGON AIR NATIONAL GUARD BASE PORTLAND** **FINDS** **1016093141**
Target **6801 NE CORNFOOT RD** **ECHO** **N/A**
Property **PORTLAND, OR 97218**

Site 17 of 23 in cluster A

Actual:
22 ft.

FINDS:

Registry ID: 110020517591

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

AIR EMISSIONS CLASSIFICATION UNKNOWN

US EPA TRIS (Toxics Release Inventory System) contains information from facilities on the amounts of over 300 listed toxic chemicals that these facilities release directly to air, water, land, or that are transported off-site.

FEDERAL FACILITY HAZARDOUS WASTE DOCKET

US National Pollutant Discharge Elimination System (NPDES) module of the Compliance Information System (ICIS) tracks surface water permits issued under the Clean Water Act. Under NPDES, all facilities that

USAF OREGON AIR NATIONAL GUARD BASE PORTLAND (Continued) **1016093141**

discharge pollutants from any point source into waters of the United States are required to obtain a permit. The permit will likely contain limits on what can be discharged, impose monitoring and reporting requirements, and include other provisions to ensure that the discharge does not adversely affect water quality.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

SUPERFUND (NON-NPL)

HAZARDOUS WASTE BIENNIAL REPORTER

AIR MINOR

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and it Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1016093141
Registry ID:	110020517591
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110020517591

A18 **OREGON AIR NATIONAL GUARD BLDG 1225 HOT** **OR RGA LUST** **S115413058**
Target Property **6801 NE CORNFOOT ROAD-ANG BASE** **N/A**
PORTLAND, OR

Site 18 of 23 in cluster A

Actual: 22 ft.

RGA LUST:

2011	OREGON AIR NATIONAL GUARD BLDG 1225 HOT	6801 NE CORNFOOT ROAD-ANG BASE
2010	OREGON AIR NATIONAL GUARD BLDG 1225 HOT	6801 NE CORNFOOT ROAD-ANG BASE
2009	OREGON AIR NATIONAL GUARD BLDG 1225 HOT	6801 NE CORNFOOT ROAD-ANG BASE
2008	OREGON AIR NATIONAL GUARD BLDG 1225 HOT	6801 NE CORNFOOT ROAD-ANG BASE

OREGON AIR NATIONAL GUARD BLDG 1225 HOT (Continued) **S115413058**

2007	OREGON AIR NATIONAL GUARD BLDG 1225 HOT	6801 NE CORNFOOT ROAD-ANG BASE
2006	OREGON AIR NATIONAL GUARD BLDG 1225 HOT	6801 NE CORNFOOT ROAD-ANG BASE
2005	OREGON AIR NATIONAL GUARD BLDG 1225 HOT	6801 NE CORNFOOT ROAD-ANG BASE
2002	OREGON AIR NATIONAL GUARD BLDG 1225 HOT	6801 NE CORNFOOT ROAD-ANG BASE

A19 **OREGON AIR NATIONAL GUARD BLDG 1225** **OR RGA LUST** **S115413059**
Target Property **6801 NE CORNFOOT ROAD-ANG BASE** **N/A**
PORTLAND, OR

Site 19 of 23 in cluster A

Actual: 22 ft.

RGA LUST:

2004	OREGON AIR NATIONAL GUARD BLDG 1225	6801 NE CORNFOOT ROAD-ANG BASE
2003	OREGON AIR NATIONAL GUARD BLDG 1225	6801 NE CORNFOOT ROAD-ANG BASE

A20 **OR AIR NATIONAL GUARD** **OR RGA LUST** **S115412915**
Target Property **6801 NE CORNFOOT RD** **N/A**
PORTLAND, OR

Site 20 of 23 in cluster A

Actual: 22 ft.

RGA LUST:

2006	OR AIR NATIONAL GUARD	6801 NE CORNFOOT RD
2005	OR AIR NATIONAL GUARD	6801 NE CORNFOOT RD
2004	OR AIR NATIONAL GUARD	6801 NE CORNFOOT RD
2003	OR AIR NATIONAL GUARD	6801 NE CORNFOOT RD
2002	OR AIR NATIONAL GUARD	6801 NE CORNFOOT RD

A21 **ERNS** **2004718055**
Target Property **6801 NORTH EAST CORNFOOT RD** **N/A**
PORTLAND, OR 97218

Site 21 of 23 in cluster A

Actual: 22 ft.

Incident Commons:

NRC Report #:	718055
Description of Incident:	50 GALLONS OF UNLEADED GASOLINE RELEASED FROM AN OILY WATER SEPARATOR WHICH PROCESSES STORM WATER AT THE FUEL STORAGE. THE RELEASE MAY HAVE BEEN FROM A LEAK IN THE PIPE.
Type of Incident:	FIXED
Incident Cause:	EQUIPMENT FAILURE
Incident Date Time:	2004-02-06 08:00:00
Incident DTG:	DISCOVERED
Incident Location:	Not reported
Loaction Address:	6801 NORTH EAST CORNFOOT RD
Location Street 1:	Not reported
Location Street 2:	Not reported

(Continued) **2004718055**

Location Nearest City:	PORTLAND
Location State:	OR
Location County:	MULTNOMAH
Location Zip:	97218
Distance From City:	Not reported
Distance Units:	Not reported
Direction From City:	Not reported
Lat Deg:	Not reported
Lat Min:	Not reported
Lat Sec:	Not reported
Lat Quad:	Not reported
Long Deg:	Not reported
Long Min:	Not reported
Long Sec:	Not reported
Long Quad:	Not reported
Location Section:	Not reported
Location Township:	Not reported
Location range:	Not reported
Potential Range:	Not reported

Incidents:

NRC Report #:	718055
Aircraft Type:	Not reported
Aircraft Model:	Not reported
Aircraft ID:	Not reported
Aircraft Fuel Capacity:	Not reported
Aircraft Fuel Capacity Units:	Not reported
Aircraft Fuel on Board:	Not reported
Aircraft Fuel on Board Units:	Not reported
Aircraft Spot Number:	Not reported
Aircraft Hanger:	Not reported
Aircraft Runway Number:	Not reported
Road Mile Marker:	Not reported
Building ID:	Not reported
Type of Fixed Object:	OTHER
Power Generating Facility:	N
Generating Capacity:	Not reported
Type of Fuel:	Not reported
NPDES:	Not reported
NPDES Compliance:	U
Pipeline Type:	Not reported
DOT Regulated:	U
Pipeline Above Ground:	ABOVE
Exposed Underwater:	N
Pipeline Covered:	U
Railroad Hotline:	Not reported
Grade Crossing:	N
Location Subdivision:	Not reported
Railroad Milepost:	Not reported
Type Vehicle Involved:	Not reported
Crossing Device Type:	Not reported
Device Operational:	Y
DOT Crossing Number:	Not reported
Brake Failure:	N
Description of Tank:	Not reported
Tank Above Ground:	ABOVE
Transportable Container:	U
Tank Regulated:	U

(Continued) **2004718055**

Tank Regulated By:	Not reported
Tank ID:	Not reported
Capacity of Tank:	Not reported
Capacity of Tank Units:	Not reported
Actual Amount:	Not reported
Actual Amount Units:	Not reported
Platform Rig Name:	Not reported
Platform Letter:	Not reported
Location Area ID:	Not reported
Location Block ID:	Not reported
OCSG Number:	Not reported
OCSP Number:	Not reported
State Lease Number:	Not reported
Pier Dock Number:	Not reported
Berth Slip Number:	Not reported
Continuous Release Type:	Not reported
Initial Continuous Release No:	Not reported
Continuous Release Permit:	Not reported
Allision:	N
Type of Structure:	Not reported
Structure Name:	Not reported
Structure Operational:	U
Airbag Deployed:	Not reported
Date Tiem Normal Service:	Not reported
Service Disruption Time:	Not reported
Service Disruption Units:	Not reported
Transit Bus Flag:	Not reported
CR Begin Date:	Not reported
CR End Date:	Not reported
CR Change Date:	Not reported
FBI Contact:	Not reported
FBI Contact Date Time:	Not reported
Sub Part C Testing Req:	XXX
Conductor Testing:	Not reported
Engineer Testing:	Not reported
Trainman Testing:	Not reported
Yard Foreman Testing:	Not reported
RCL Operator Testing:	Not reported
Brakeman Testing:	Not reported
Train Dispatcher Testing:	Not reported
Signalman Testing:	Not reported
Other Employee Testing:	Not reported
Unknown Testing:	Not reported
Passenger Handling:	Not reported
Passenger Route:	XXX
Passenger Delay:	XXX

Incident Details:

NRC Report #:	718055
Fire Involved:	N
Fire Extinguished:	U
Any Evacuations:	N
Number Evacuated:	Not reported
Who Evacuated:	Not reported
Radius of Evacuation:	Not reported
Any Injuries:	N
Number Injured:	Not reported

(Continued) **2004718055**

Number Hospitalized:	Not reported
Any Fatalities:	N
Number Fatalities:	Not reported
Any Damages:	N
Damage Amount:	Not reported
Air Corridor Closed:	N
Air Corridor Desc:	Not reported
Air Closure Time:	Not reported
Waterway Closed:	N
Waterway Desc:	Not reported
Waterway Closure Time:	Not reported
Road Closed:	N
Road Desc:	Not reported
Road Closure Time:	Not reported
Closure Direction:	Not reported
Major Artery:	N
Track Closed:	N
Track Desc:	Not reported
Track Closure Time:	Not reported
Media Interest:	NONE
Medium Desc:	WATER
Additional Medium Info:	WETLAND/DITCH
Body of Water:	WETLAND/DITCH
Tributary of:	Not reported
Release Secured:	Y
Estimated Duration of Release:	Not reported
Release rate:	Not reported
Desc Remedial Action:	SORBENTS IN PLACE/ REMEDIATION PLAN WILL BE DESIGNED.
State Agency on Scene:	Not reported
State Agency Report Number:	2004-07-28
Other Agency Notified:	Not reported
Weather Conditions:	Not reported
Air Temperature:	Not reported
Wind Speed:	Not reported
Wind Direction:	Not reported
Water Supply Contaminated:	U
Sheen Size:	Not reported
Sheen Color:	Not reported
Direction of Sheen Travel:	Not reported
Sheen Odor Description:	Not reported
Wave Condition:	Not reported
Current Speed:	Not reported
Current Direction:	Not reported
Water Temperature:	Not reported
Track Close Dir:	Not reported
Empl Fatality:	Not reported
Pass Fatality:	Not reported
Community Impact:	N
Wind Speed Unit:	Not reported
Employee Injuries:	Not reported
Passenger Injuries:	Not reported
Occupant Fatality:	Not reported
Current Speed Unit:	Not reported
Road Closure Units:	Not reported
Track CLosure Units:	Not reported
Sheen Size Units:	Not reported
Additional Info:	Not reported

(Continued) **2004718055**

State Agency Notified:	DEQ
Federal Agency Notified:	Not reported
nearest River Mile Marker:	Not reported
Sheen Size Length:	Not reported
Sheen Size Length Units:	Not reported
Sheen Size Width:	Not reported
Sheen Size Width Units:	Not reported
Offshore:	N
Duration Unit:	Not reported
Release Rate Unit:	Not reported
Release Rate Rate:	Not reported
Passengers Transferred:	UNK

Calls:

NRC Report #:	718055
Site ID:	2004718055
Date Time Received:	2004-04-06 13:59:07
Date Time Complete:	2004-04-06 14:08:07
Call Type:	INC
Responsible Company:	OREGON AIR NATIONAL GUARD
Responsible Org Type:	MILITARY
Responsible City:	PORTLAND
Responsible State:	OR
Responsible Zip:	97218
On Behalf:	Y
Source:	TELEPHONE

Material Involved:

NRC Report #:	718055
Chris Code:	GAS
Case Number:	000000-00-0
UN Number:	Not reported
Amount of Material:	50
Unit of Measure:	GALLON(S)
Name of Material:	GASOLINE: AUTOMOTIVE (UNLEADED)
If Reached Water:	YES
Amount in Water:	50
Unit of Measure Reach Water:	GALLON(S)

Areas of Concern **COLUMBIA SLOUGH**
PORTLAND RD
PORTLAND, OR 97218 **SEMS-ARCHIVE** **1003880262**
ORD980723076

< 1/8
1 ft.

SEMS Archive:

Site ID:	1000493
EPA ID:	ORD980723076
Cong District:	03
FIPS Code:	41051
FF:	N
NPL:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information
Latitude:	45.600278
Longitude:	-122.718056

COLUMBIA SLOUGH (Continued) **1003880262**

SEMS Archive Detail:

Region:	10
Site ID:	1000493
EPA ID:	ORD980723076
Site Name:	COLUMBIA SLOUGH
NPL:	N
FF:	N
OU:	00
Action Code:	VS
Action Name:	ARCH SITE
SEQ:	1
Start Date:	Not reported
Finish Date:	1988-12-15 05:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf In-Hse

Region:	10
Site ID:	1000493
EPA ID:	ORD980723076
Site Name:	COLUMBIA SLOUGH
NPL:	N
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	1979-07-01 04:00:00
Finish Date:	1979-07-01 04:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf

Region:	10
Site ID:	1000493
EPA ID:	ORD980723076
Site Name:	COLUMBIA SLOUGH
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	1980-03-01 05:00:00
Finish Date:	1980-03-01 05:00:00
Qual:	L
Current Action Lead:	EPA Perf

Region:	10
Site ID:	1000493
EPA ID:	ORD980723076
Site Name:	COLUMBIA SLOUGH
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	2
Start Date:	1988-12-15 05:00:00

COLUMBIA SLOUGH (Continued) **1003880262**

Finish Date: 1988-12-15 05:00:00
Qual: N
Current Action Lead: EPA Perf

A22 **JACKSON READINESS CENTER** **OR ECSI S121802076**
6255 NE CORNFOOT RD **OR VCP N/A**
< 1/8 **PORTLAND, OR 97218**
1 ft.

Site 22 of 23 in cluster A

Relative: **Lower**
Actual: **21 ft.**

ECSI:
State ID Number: 6241
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 149104
Further Action: 0
Lat/Long (dms): 45 34 31.40 / -122 35 55.30
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 17
Qtr Section: B
Tax Lots: 300
Size: 4.03
NPL: False
Orphan: False
Updated By: CRICHAR
Update Date: 01/30/2018
Created Date: 01/30/2018
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: Oregon Military Department

Hazardous Release:
Substance ID.: 121639
Haz Release ID: 388397
Qty Released: Unknown
Date Released: Not reported
Update Date: 02/01/2018
Update By: CRICHAR
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported

JACKSON READINESS CENTER (Continued) **S121802076**

Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 350982
Feature Id: 0
Hazard Release Id: 388397
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-6
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 150.00
Sample Comment: Not reported
Last Update By: CRICHAR
Update Date: 02/01/2018
Decode for MediumID: Soil

Narrative:
NARR ID: 5757020
NARR Code: Contamination
Created By: CRICHAR
Created Date: 01/30/2018
Updated By: CRICHAR
Updated Date: 01/30/2018
Decode for NarcdID: Contamination
NARR Comments: Potential lead contamination to soils surrounding building from indoor firing range.[CAR 1/18]

NARR ID: 5757021
NARR Code: 1922
Created By: CRICHAR
Created Date: 01/30/2018
Updated By: CRICHAR
Updated Date: 01/30/2018
Decode for NarcdID: Current Site Summary Statement
NARR Comments: DEQ is working with the Oregon Military Department to review reports for several sites around the state. An initial site investigation report for this site has been recieved and will be reviewed in the coming months. [CAR 1/18]

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 01/30/2018
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/30/2018
Decode for AgencyID: Department of Environmental Quality

JACKSON READINESS CENTER (Continued) **S121802076**

Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/30/2018
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

VCS:
ECS Site ID: 6241
Facility Size: 4.03
Action: SITE INVESTIGATION
Start Date: 01/30/2018
End Date: Not reported
Facility Status: Active
Program: VCP
Latitude: 45.5754
Longitude: -122.5987

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23 **HEATING OIL TANK** **OR LUST** **S103543171**
CORNFOOT RD / BONG STREET **N/A**
< 1/8 **PORTLAND, OR 97218**
1 ft.

LUST:
Relative: Region: North Western Region
Lower Facility ID: 26-88-0088
Actual: Cleanup Received Date: 11/08/1988
21 ft. Cleanup Start Date: 11/08/1988
Cleanup Complete Date: 01/18/1989
Decode for Region: North West Region

A24 **JACKSON ARMORY** **OR LUST** **U004015214**
6255 NE CORNFOOT DR **OR UST** **N/A**
< 1/8 **PORTLAND, OR 97218**
1 ft.

Site 23 of 23 in cluster A

Relative: LUST:
Lower Region: North Western Region
Actual: Facility ID: 26-01-6909
21 ft. Cleanup Received Date: 09/04/2001
Cleanup Start Date: 09/04/2001

JACKSON ARMORY (Continued) **U004015214**

Cleanup Complete Date: 11/28/2001
Decode for Region: North West Region

UST:
Facility ID: 597
Facility Telephone: (503)378-3914
Permittee Name: B N SCHRIEVER, INSTALLATIONS OFFICER
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 2
Number of Tanks: 2

B25 **SILVER EAGLE MANUFACTURING COMPANY** **RCRA-CESQG** **1001125301**
WSW **5825 NE SKYPORT WAY** **FINDS** **ORQ000004770**
< 1/8 **PORTLAND, OR 97218** **ECHO**
0.048 mi. **OR AIRS**
252 ft. **Site 1 of 2 in cluster B** **CA HAZNET**
OR MANIFEST

Relative:
Lower

Actual:
13 ft.

RCRA-CESQG:
Date form received by agency: 12/31/2013
Facility name: SILVER EAGLE MANUFACTURING CO
Facility address: 5825 NE SKYPORT WAY
PORTLAND, OR 97211
EPA ID: ORQ000004770
Contact: ALI SAALABIAN
Contact address: 5825 NE SKYPORT WAY
PORTLAND, OR 97211
Contact country: US
Contact telephone: 503-335-2145
Contact email: Not reported
EPA Region: 10
Land type: Private
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:
Owner/operator name: SILVER EAGLE MANUFACTURING CO
Owner/operator address: 5825 NE SKYPORT WAY
PORTLAND, OR 97218
Owner/operator country: US
Owner/operator telephone: 503-281-0727
Owner/operator email: Not reported
Owner/operator fax: Not reported

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 12/31/2013
Owner/Op end date: Not reported

Owner/operator name: SILVER EAGLE MANUFACTURING CO
Owner/operator address: 5825 NE SKYPORT WY
PORTLAND, OR 97218
Owner/operator country: US
Owner/operator telephone: 503-281-0727
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 11/15/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D007
. Waste name: CHROMIUM

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F019
. Waste name: WASTEWATER TREATMENT SLUDGES FROM THE CHEMICAL CONVERSION COATING OF ALUMINUM EXCEPT FROM ZIRCONIUM PHOSPHATING IN ALUMINUM CAN WASHING WHEN SUCH PHOSPHATING IS AN EXCLUSIVE CONVERSION COATING PROCESS.

. Waste code: NA
. Waste name: NA

Historical Generators:
Date form received by agency: 12/31/2013
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2012
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2011
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2010
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2009
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2008
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 03/03/2008
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 12/31/2007
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 12/31/2006
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 12/31/2005
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 12/31/2004
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 12/31/2003
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 05/28/2003
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 02/15/2002
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 02/02/2001
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 03/13/2000
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 02/11/1999
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Date form received by agency: 02/26/1998
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Date form received by agency: 03/03/1997
Site name: SILVER EAGLE MANUFACTURING CO
Classification: Small Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Universal Waste - Small Quantity Handlers
Date violation determined: 11/25/2013
Date achieved compliance: 12/03/2013
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/19/2013
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 11/25/2013
Date achieved compliance: 12/03/2013
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/19/2013
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 11/25/2013
Date achieved compliance: 12/03/2013
Violation lead agency: State
Enforcement action: NOVCO WITH PENALTY
Enforcement action date: 09/20/2007
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 4979
Final penalty amount: Not reported
Paid penalty amount: 4979

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 04/10/2007
Date achieved compliance: 05/24/2007
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Enforcement action date: 04/24/2007
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Universal Waste - Small Quantity Handlers
Date violation determined: 04/10/2007
Date achieved compliance: 05/24/2007
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 04/24/2007
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Universal Waste - Small Quantity Handlers
Date violation determined: 04/10/2007
Date achieved compliance: 05/24/2007
Violation lead agency: State
Enforcement action: NOVCO WITH PENALTY
Enforcement action date: 09/20/2007
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 4979
Final penalty amount: Not reported
Paid penalty amount: 4979

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 04/10/2007
Date achieved compliance: 05/24/2007
Violation lead agency: State
Enforcement action: NOVCO WITH PENALTY
Enforcement action date: 09/20/2007
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 4979
Final penalty amount: Not reported
Paid penalty amount: 4979

Regulation violated: FR - 40 CFR 265.174
Area of violation: Generators - General
Date violation determined: 11/21/2000
Date achieved compliance: 12/07/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/27/2000

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.173
Area of violation: Generators - Pre-transport
Date violation determined: 11/21/2000
Date achieved compliance: 12/07/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/27/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 262.34(d)(5)(iii)
Area of violation: Generators - General
Date violation determined: 11/21/2000
Date achieved compliance: 12/07/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/27/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 262.34(d)(5)(i)
Area of violation: Generators - General
Date violation determined: 11/21/2000
Date achieved compliance: 12/07/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/27/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 262.34(d)(5)(ii)
Area of violation: Generators - General
Date violation determined: 11/21/2000
Date achieved compliance: 12/07/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/27/2000
Enf. disposition status: Not reported

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 262.34(a)(3)
Area of violation: Generators - Pre-transport
Date violation determined: 11/21/2000
Date achieved compliance: 12/07/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/27/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.32(a)
Area of violation: Generators - General
Date violation determined: 11/21/2000
Date achieved compliance: 12/07/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/27/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 279.22(c)(1)
Area of violation: Generators - Pre-transport
Date violation determined: 11/21/2000
Date achieved compliance: 12/07/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/27/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 262.34(a)(2)
Area of violation: Generators - Pre-transport
Date violation determined: 11/21/2000
Date achieved compliance: 12/07/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/27/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:

Evaluation date: 11/25/2013
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Universal Waste - Small Quantity Handlers
Date achieved compliance: 12/03/2013
Evaluation lead agency: State

Evaluation date: 11/25/2013
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 12/03/2013
Evaluation lead agency: State

Evaluation date: 01/26/2012
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/29/2011
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/24/2007
Evaluation: NOT A SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/10/2007
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 05/24/2007
Evaluation lead agency: State

Evaluation date: 04/10/2007
Evaluation: SIGNIFICANT NON-COMPLIER
Area of violation: Universal Waste - Small Quantity Handlers
Date achieved compliance: 05/24/2007
Evaluation lead agency: State

Evaluation date: 04/10/2007
Evaluation: SIGNIFICANT NON-COMPLIER
Area of violation: Generators - Pre-transport
Date achieved compliance: 05/24/2007
Evaluation lead agency: State

Evaluation date: 04/10/2007
Evaluation: SIGNIFICANT NON-COMPLIER
Area of violation: Generators - Pre-transport

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Date achieved compliance: 12/03/2013
Evaluation lead agency: State

Evaluation date: 04/10/2007
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Universal Waste - Small Quantity Handlers
Date achieved compliance: 05/24/2007
Evaluation lead agency: State

Evaluation date: 04/10/2007
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 12/03/2013
Evaluation lead agency: State

Evaluation date: 07/06/2003
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/21/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 12/07/2000
Evaluation lead agency: State

Evaluation date: 11/21/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 12/07/2000
Evaluation lead agency: State

FINDS:

Registry ID: 110001658386

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Envid:	1001125301
Registry ID:	110001658386
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110001658386

OR AIRS:

Year:	Not reported
Emission:	Not reported
Permit Number:	26-3317-ST-01
Permit Type:	Standard ACDP
Expiration Date:	08/01/2013
Source ID:	Not reported
Issue Date:	05/28/2009
NAICS Code:	336212
Is Primary:	Not reported
SIC Code:	3715
Is Primary:	Not reported
Latitude:	45.5740
Longitude:	-122.6000
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

HAZNET:

Facility Name:	SILVER EAGLE MANUFACTURING CO
envid:	1001125301
Year:	2002
GEPAID:	ORQ000004770
Contact:	KENT BERRY
Telephone:	5033352142
Mailing Name:	Not reported
Mailing Address:	5825 NE SKYPORT WAY
Mailing City,St,Zip:	PORTLAND, OR 97218
Gen County:	Not reported
TSD EPA ID:	CAD980884183
TSD County:	Not reported
Waste Category:	Other still bottom waste
Disposal Method:	Disposal, Other
Tons:	0.45
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	99

envid:	1001125301
Year:	2002
GEPAID:	ORQ000004770
Contact:	KENT BERRY
Telephone:	5033352142
Mailing Name:	Not reported
Mailing Address:	5825 NE SKYPORT WAY
Mailing City,St,Zip:	PORTLAND, OR 97218

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Gen County: Not reported
TSD EPA ID: CAD980884183
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Disposal, Other
Tons: 0.22
Cat Decode: Not reported
Method Decode: Not reported
Facility County: 99

OR MANIFEST:
Manifest Year: Manifest Year - 2013
EPA Id: ORQ000004770
Inactive Status: Not reported
Organization Name: Not reported
Contact Name: Ali Saalabian
Contact Telephone Number: Not reported
Mailing Address: 5825 NE Skyport Way
Mailing City/State/Zip: Portland, OR 97211

Manifest:
Year : 2013
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 006198559FLE
Ship Date : 09/25/2013
TSD : IND000646943
WS Num: 1
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D035 F003
Waste Description: paint still bottms
Total Amt Of Waste Stream Generated in Reporting Yr 1: 272.10000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Manifest:
Year : 2012
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 004363138
Ship Date : 03/05/2012
TSD : IND000646943
WS Num: 1
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: paint related material
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 004363514
Ship Date : 10/01/2012
TSD : IND000646943
WS Num: 1
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: paint related material
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 004363183
Ship Date : 04/02/2012
TSD : IDD073114654
WS Num: 2
Transporter: ORO000006221
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007
Waste Description: disposal of expirered chemical
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 004363138
Ship Date : 03/05/2012
TSD : IND000646943
WS Num: 3
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D035 F003 F005
Waste Description: disposable rags used as sovent wipes
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Manifest : 004363515
Ship Date : 10/01/2012
TSD : IDD073114654
WS Num: 4
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D002
Waste Description: disposal of spent cleaner bath
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2011
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 004358283fle
Ship Date : 08/16/2011
TSD : IND000646943
WS Num: 1
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2448.9000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Year : 2011
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 004358491fle
Ship Date : 12/12/2011
TSD : IND000646943
WS Num: 1
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2448.9000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1088.4000000000001

Year : 2011
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 004358216fle
Ship Date : 07/06/2011
TSD : IND000646943

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

WS Num: 1
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2448.9000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Year : 2011
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 002823925fle
Ship Date : 03/14/2011
TSD : IND000646943
WS Num: 1
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2448.9000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 544.20000000000005

Year : 2011
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 002823829fle
Ship Date : 01/17/2011
TSD : IND000646943
WS Num: 1
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2448.9000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Manifest:
Year : 2010
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 002822207
Ship Date : 03/10/2010
TSD : IND000646943
WS Num: 1
Transporter: KSD000336891
Ship Qty : Not reported

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3319.6199999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 299.31

Year : 2010
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 002823656
Ship Date : 10/14/2010
TSD : IND000646943
WS Num: 1
Transporter: KSD000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3319.6199999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 816.29999999999995

Year : 2010
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 002822493
Ship Date : 08/04/2010
TSD : IND000646943
WS Num: 1
Transporter: KSD000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3319.6199999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 816.29999999999995

Year : 2010
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 002822314
Ship Date : 04/28/2010
TSD : MOD054018288
WS Num: 1
Transporter: KSD000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3319.6199999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Year : 2010
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 002822152
Ship Date : 02/01/2010
TSD : IND000646943
WS Num: 1
Transporter: KSD000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3319.6199999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Year : 2010
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 0028/23758
Ship Date : 12/02/2010
TSD : IND000646943
WS Num: 1
Transporter: KSD000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3319.6199999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 544.20000000000005

Year : 2010
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 002822400
Ship Date : 06/24/2010
TSD : MOD054018288
WS Num: 1
Transporter: KSD000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 F003 F005
Waste Description: Paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3319.6199999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 299.31

Manifest:
Year : 2009
RCRA Id : ORQ000004770
Inactive : Not reported

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Status: Small quantity generator
Manifest : 001344008fle
Ship Date : 06/19/2009
TSD : IDD073114654
WS Num: 1
Transporter: ORQ000006221
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D002 D007
Waste Description: unused chemicals
Total Amt Of Waste Stream Generated in Reporting Yr 1: 204.07499999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 204.07499999999999

Year : 2009
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 002822059fle
Ship Date : 12/04/2009
TSD : MOD054018288
WS Num: 2
Transporter: ORQ000006221
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 F003 F005
Waste Description: paint related materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: 272.10000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Manifest:
Year : 2008
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 003988512JJK
Ship Date : 06/03/2008
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: UNUSED PAINT STILLBOTTOMS
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1683.6187500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 374.13749999999999

Year : 2008
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001983141JJK
Ship Date : 02/05/2008

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: UNUSED PAINT STILLBOTTOMS
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1683.6187500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 748.27499999999998

Year : 2008
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001989746JJK
Ship Date : 03/28/2008
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: UNUSED PAINT STILLBOTTOMS
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1683.6187500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 561.20624999999995

Manifest:
Year : 2007
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 000199198
Ship Date : 11/12/2007
TSD : IDD073114654
WS Num: 1
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007
Waste Description: expired chemical chromic acid
Total Amt Of Waste Stream Generated in Reporting Yr 1: 408.14999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.14999999999998

Year : 2007
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001323243jjk
Ship Date : 04/19/2007
TSD : ORD089452353
WS Num: 5
Transporter: WAH000012450

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H136
EPA Waste Codes: F006 F019
Waste Description: filter sludge from chrome waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 561.21000000000004
Total Amt Of Waste Stream Generated in Reporting Yr 2: 374.13999999999999

Year : 2007
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001324287jjk
Ship Date : 02/14/2007
TSD : ORD089452353
WS Num: 5
Transporter: WAH000012450
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H136
EPA Waste Codes: F006 F019
Waste Description: filter sludge from chrome waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 561.21000000000004
Total Amt Of Waste Stream Generated in Reporting Yr 2: 221.08000000000001

Year : 2007
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001323898jjk
Ship Date : 07/18/2007
TSD : WAD981769110
WS Num: 4
Transporter: WAH000012450
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: unused paint stillbottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2571.3499999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 561.21000000000004

Year : 2007
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001323242jjk
Ship Date : 04/19/2007
TSD : WAD981769110
WS Num: 4
Transporter: WAH000012450
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: unused paint stillbottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2571.3499999999999

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 561.21000000000004

Year : 2007
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001323540jjk
Ship Date : 05/30/2007
TSD : WAD981769110
WS Num: 4
Transporter: WAH000012450
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: unused paint stillbottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2571.3499999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 425.16000000000003

Year : 2007
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001324286jjk
Ship Date : 02/14/2007
TSD : WAD981769110
WS Num: 4
Transporter: WAH000012450
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: unused paint stillbottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2571.3499999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 561.21000000000004

Year : 2007
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 000199198
Ship Date : 11/12/2007
TSD : IDD073114654
WS Num: 2
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D001
Waste Description: expired chemical not in use
Total Amt Of Waste Stream Generated in Reporting Yr 1: 204.08000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 204.08000000000001

Year : 2007
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Manifest : 001419538jjk
Ship Date : 10/24/2007
TSD : WAD981769110
WS Num: 4
Transporter: WAH000012450
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: unused paint stillbottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2571.3499999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 469.37

Year : 2007
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 000199198
Ship Date : 11/12/2007
TSD : IDD073114654
WS Num: 3
Transporter: KS0000336891
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D002
Waste Description: un used chemical
Total Amt Of Waste Stream Generated in Reporting Yr 1: 204.08000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 204.08000000000001

Click this hyperlink while viewing on your computer to access
45 additional OR_MANIFEST: record(s) in the EDR Site Report.

Manifest:
Year : 2006
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 39551
Ship Date : 02/01/2006
TSD : IND000646943
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: still bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Manifest : 001530928jjk
Ship Date : 12/07/2006
TSD : IND000646943
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: still bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 60291
Ship Date : 04/27/2006
TSD : IND000646943
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: still bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001530722jjk
Ship Date : 09/28/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H132
EPA Waste Codes: D002
Waste Description: alkali degreaser
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001530723jjk
Ship Date : 09/28/2006
TSD : IND000646943
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 55

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: still bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 001530929jjk
Ship Date : 12/07/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 400
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: F019
Waste Description: Chrome Filter Press Sludge
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 72251
Ship Date : 08/09/2006
TSD : IND000646943
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: still bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2004
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 29633
Ship Date : 11/04/2004
TSD : IND000646943
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H050
EPA Waste Codes: D001 D035 F003 F005

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 28391
Ship Date : 08/25/2004
TSD : IND000646943
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H050
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 26419
Ship Date : 04/22/2004
TSD : IND000646943
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H050
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORQ000004770
Inactive : Not reported
Status: Small quantity generator
Manifest : 28392
Ship Date : 08/25/2004
TSD : ORD089452353
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H132
EPA Waste Codes: D002
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORQ000004770

SILVER EAGLE MANUFACTURING COMPANY (Continued) **1001125301**

Inactive :	Not reported
Status:	Small quantity generator
Manifest :	26418
Ship Date :	04/22/2004
TSD :	ORD089452353
WS Num:	Not reported
Transporter:	WAH000012450
Ship Qty :	400
Rpt Unit :	LB
Off Mng :	H132
EPA Waste Codes:	F019
Waste Description:	Not reported

Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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B26 **MILLER BRANDS INC** **OR LUST** **U000432991**
WSW **5825 NE SKYPORT WAY** **OR UST** **N/A**
< 1/8 **PORTLAND, OR 97218** **OR AST**
0.048 mi. **OR HSIS**
252 ft. **Site 2 of 2 in cluster B** **OR UIC**

Relative: Lower

Actual: 13 ft.

LUST:

Region:	North Western Region
Facility ID:	26-90-0451
Cleanup Received Date:	11/21/1990
Cleanup Start Date:	11/21/1990
Cleanup Complete Date:	**11/27/1991**
Decode for Region:	**North West Region**

Region:	North Western Region
Facility ID:	26-93-0189
Cleanup Received Date:	11/01/1993
Cleanup Start Date:	10/23/1993
Cleanup Complete Date:	**04/19/1994**
Decode for Region:	**North West Region**

UST:

Facility ID:	7097
Facility Telephone:	(503)288-8831
Permittee Name:	JAMES JOHNSON, WAREHOUSE MANAGER
Number of Permitted Tanks:	Not reported
Active Tanks:	Not reported
Decommissioned Tanks:	2
Number of Tanks:	2

AST:

Facility Id:	024886
Hazardous Substance:	PROPANE
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported
Storage 1:	Above ground tank
County:	MULTNOMAH
Owner-Operator Name:	GARY
Direct Site Phone:	5032810727
Report Class:	Annual

MILLER BRANDS INC (Continued) **U000432991**

Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No
Is Biological Hazard:	No
Is Radioactive Material:	No
Is Explosive:	Yes
Status:	Not reported

HSIS:

Facility ID:	024886
Department Or Division Of Company:	Not reported
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	336212
NAICS Desc 1:	TRUCK TRAILER MFG
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	GARY GAUSSOIN
Business Phone:	5032810727
Mailing Address:	5825 NE SKYPORT WY
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	100
Day Phone:	5032810727
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	ALI SAALABIAN
Emergency Procedure:	DATABASE S DRIVE CONTINGENCY PLAN
Business Type:	TRANSPORTATION EQUIPMENT MFG
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported

MILLER BRANDS INC (Continued) **U000432991**

Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	024886
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas

MILLER BRANDS INC (Continued) **U000432991**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	PAINT
Physical Description:	LIQUID
Case Number:	64742478
Facility Id:	024886
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	F
Temperature Description:	CAN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PAINT
United Nations/north America 4 Digit Class Number:	1263
Chemical Abstract Service Identifier Number:	64742478
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard

MILLER BRANDS INC (Continued) **U000432991**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	PHOSPHORIC ACID
Physical Description:	LIQUID
Case Number:	7664382
Facility Id:	024886
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	C
Temperature Description:	TANK INSIDE BUILDING
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	GREATER THAN NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	5
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PHOSPHORIC ACID
United Nations/north America 4 Digit Class Number:	1805
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Reactive Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.4
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PHOSPHORIC ACID
United Nations/north America 4 Digit Class Number:	1805
Chemical Abstract Service Identifier Number:	7664382
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Reactive Material
Second Hazardous Class Code For Chemical:	Corrosive Material

MILLER BRANDS INC (Continued) **U000432991**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.4
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	PROPANE
Physical Description:	GAS
Case Number:	74986
Facility Id:	024886
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Chemical Abstract Service Identifier Number:	74986
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard

MILLER BRANDS INC (Continued) **U000432991**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	SULFURIC ACID 50%
Physical Description:	LIQUID
Case Number:	7664939
Facility Id:	024886
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	04
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	50-199
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2796
Hazard Rank:	2
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	SULFURIC ACID 50%
United Nations/north America 4 Digit Class Number:	2796
Chemical Abstract Service Identifier Number:	7664939
Chemical Is Extremely Hazardous Substance (EHS):	Y
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard

MILLER BRANDS INC (Continued) **U000432991**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Y
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ARGON/CARBON DIOXIDE MIXTURE
Physical Description:	GAS
Case Number:	7440371
Facility Id:	024886
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON/CARBON DIOXIDE MIXTURE
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard

MILLER BRANDS INC (Continued) **U000432991**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ARGON/HELIUM
Physical Description:	GAS
Case Number:	7440371
Facility Id:	024886
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON/HELIUM
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported

MILLER BRANDS INC (Continued) **U000432991**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	RIDOLINE 56
Physical Description:	LIQUID
Case Number:	1312761
Facility Id:	024886
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	POTASSIUM SILICATE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Reactive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.4
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	RIDOLINE 56
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	1312761
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Reactive Material

MILLER BRANDS INC (Continued) **U000432991**

Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.4
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	024886
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material

MILLER BRANDS INC (Continued) **U000432991**

Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

OR UIC:

UIC Well #:	1
Type:	5D4
Type Description:	Industrial Storm Water Drainage
Status:	Active
UIC Number:	10248
Facility Status:	Not Registered
Lat/Long:	45.574699 / -122.6021

C27 **HEATING OIL TANK** **OR LUST** **S117881016**
SSW **6135 NE BRYANT ST** **N/A**
< 1/8 **PORTLAND, OR 97218**
0.059 mi.
311 ft. **Site 1 of 2 in cluster C**

Relative: LUST:
Lower

Region:	North Western Region
Facility ID:	26-15-0172
Cleanup Received Date:	02/13/2015
Cleanup Start Date:	Not reported
Cleanup Complete Date:	**12/16/2015**
Decode for Region:	**North West Region**

Actual:
13 ft.

C28 **HEATING OIL TANK** **OR LUST** **S112225505**
SSW **6110 NE BRYANT** **N/A**
< 1/8 **PORTLAND, OR 97218**
0.089 mi.
469 ft. **Site 2 of 2 in cluster C**

Relative: LUST:
Lower

Region:	North Western Region
Facility ID:	26-12-1027
Cleanup Received Date:	08/29/2012
Cleanup Start Date:	Not reported
Cleanup Complete Date:	**02/06/2013**
Decode for Region:	**North West Region**

Actual:
13 ft.

29
SW
< 1/8
0.103 mi.
546 ft.

BLOCK GRAPHICS INC
5822 NE SKYPORT WAY
PORTLAND, OR 97218

RCRA-CESQG
FINDS
ECHO
OR HSIS
OR MANIFEST

1004580711
ORD096240569

Relative:
Lower

Actual:
13 ft.

RCRA-CESQG:

Date form received by agency:	12/31/2007
Facility name:	BLOCK GRAPHICS INC
Facility address:	5822 NE SKYPORT WAY PORTLAND, OR 97218
EPA ID:	ORD096240569
Mailing address:	PO BOX 13530 PORTLAND, OR 97213
Contact:	COLETTE JAMISON
Contact address:	PO BOX 13530 PORTLAND, OR 97213
Contact country:	US
Contact telephone:	503-287-0343
Contact email:	Not reported
EPA Region:	10
Land type:	Private
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	ENNIS INC
Owner/operator address:	2441 PRESIDENTIAL PKWY MIDLTHIAN, TX 76065
Owner/operator country:	US
Owner/operator telephone:	800-752-5386
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	034
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	08/08/2006
Owner/Op end date:	Not reported

Owner/operator name:	BLOCK GRAPHICS INC
Owner/operator address:	PO BOX 13530 PORTLAND, OR 97213
Owner/operator country:	US
Owner/operator telephone:	503-287-0343
Owner/operator email:	Not reported
Owner/operator fax:	Not reported

BLOCK GRAPHICS INC (Continued) **1004580711**

Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1980
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: NA
. Waste name: NA

Historical Generators:
Date form received by agency: 12/31/2006
Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

Date form received by agency: 11/07/2006
Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

Date form received by agency: 12/31/2005
Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

Date form received by agency: 12/31/2004
Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

Date form received by agency: 12/31/2003
Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

Date form received by agency: 02/07/2003
Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

Date form received by agency: 01/16/2002
Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

Date form received by agency: 02/22/2001

BLOCK GRAPHICS INC (Continued) **1004580711**

Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

Date form received by agency: 01/24/2000
Site name: BLOCK GRAPHICS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/04/1999
Site name: BLOCK GRAPHICS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/08/1998
Site name: BLOCK GRAPHICS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/14/1997
Site name: BLOCK GRAPHICS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/26/1996
Site name: BLOCK GRAPHICS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/28/1995
Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

Date form received by agency: 02/03/1994
Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D018
. Waste name: BENZENE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

Date form received by agency: 03/01/1993
Site name: BLOCK GRAPHICS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/12/1992
Site name: BLOCK GRAPHICS INC
Classification: Small Quantity Generator

BLOCK GRAPHICS INC (Continued) **1004580711**

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 01/07/2003
Date achieved compliance: 02/27/2003
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 01/08/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 01/07/2003
Date achieved compliance: 02/27/2003
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 01/08/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 02/15/2008
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 03/18/2005
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 01/07/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 02/27/2003
Evaluation lead agency: State

Evaluation date: 01/07/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 02/27/2003
Evaluation lead agency: State

FINDS:

Registry ID: 110001657975

BLOCK GRAPHICS INC (Continued) **1004580711**

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

OSHA ESTABLISHMENT

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1004580711
Registry ID:	110001657975
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110001657975

HSIS:

Facility ID:	003769
Department Or Division Of Company:	ENVELOPE GROUP
Extremely Hazardous Substance:	Y
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	322232
NAICS Desc 1:	ENVELOPE MFG
NAICS Code 2:	493110
NAICS Desc 2:	GENERAL WAREHOUSING & STORAGE
Manager Name:	KEITH WALTERS
Business Phone:	5032870343
Mailing Address:	PO BOX 13530
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	972130530
No. of Employees:	47
Day Phone:	5032870343
Placard:	N
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	COLETTE JAMISON
Emergency Procedure:	OFFICE MGRS DESK - UPSTAIRS IN NW CORNER
Business Type:	ENVELOPE MFG & CUSTOMER STORAGE
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported

BLOCK GRAPHICS INC (Continued) **1004580711**

Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	GUM 1316
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	003769
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	O
Description:	TOTEBIN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	NONE LISTED

BLOCK GRAPHICS INC (Continued) **1004580711**

United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	GUM 1316
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	003769
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	21
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	SULFURIC ACID

BLOCK GRAPHICS INC (Continued) **1004580711**

United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	GUM AQ 767P
Physical Description:	LIQUID
Case Number:	57556
Facility Id:	003769
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	O
Description:	TOTEBIN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	1,2-PROPANEDIOL

BLOCK GRAPHICS INC (Continued) **1004580711**

United Nations/north america 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	False
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Combustible Material
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	4.5

Chemical:

Chemical Name:	GUM AQ 767P
United Nations/north america 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	57556
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Combustible Material
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	4.5
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Y
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	GUM RD23840
Physical Description:	LIQUID
Case Number:	000000
Facility Id:	003769
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	O
Description:	TOTEBIN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	NONE LISTED ON MSDS

BLOCK GRAPHICS INC (Continued) **1004580711**

United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	1
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	GUM RD23840
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	000000
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

OR MANIFEST:

Manifest Year:	Manifest Year - 2007
EPA Id:	ORD096240569
Inactive Status:	Not reported
Organization Name:	Not reported
Contact Name:	Colette Jamison
Contact Telephone Number:	(503) 287-0343, ext.
Mailing Address:	PO Box 13530
Mailing City/State/Zip:	Portland, OR 97213

Manifest:

Year :	2007
RCRA Id :	ORD096240569
Inactive :	Not reported
Status:	Conditionally exempt generator
Manifest :	63638
Ship Date :	03/13/2007
TSD :	ORD981766124
WS Num:	1
Transporter:	TXR000050930
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H020
EPA Waste Codes:	D001

BLOCK GRAPHICS INC (Continued) **1004580711**

Waste Description: Parts washer solvent, Petroleum Naptha
Total Amt Of Waste Stream Generated in Reporting Yr 1: 245.97999999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 61.490000000000002

Year : 2007
RCRA Id : ORD096240569
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 40647
Ship Date : 08/28/2007
TSD : ORD981766124
WS Num: 1
Transporter: TXR000050930
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Parts washer solvent, Petroleum Naptha
Total Amt Of Waste Stream Generated in Reporting Yr 1: 245.97999999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 55.350000000000001

Year : 2007
RCRA Id : ORD096240569
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 000199250JJK
Ship Date : 12/21/2007
TSD : TND000772186
WS Num: 3
Transporter: ORQ000006221
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 F003 F005
Waste Description: RQ waste flammable liquid
Total Amt Of Waste Stream Generated in Reporting Yr 1: 369.75999999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 160.77000000000001

Year : 2007
RCRA Id : ORD096240569
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 000324457SKS
Ship Date : 06/08/2007
TSD : ORD981766124
WS Num: 1
Transporter: TXR000050930
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Parts washer solvent, Petroleum Naptha
Total Amt Of Waste Stream Generated in Reporting Yr 1: 245.97999999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 67.640000000000001

Year : 2007
RCRA Id : ORD096240569

BLOCK GRAPHICS INC (Continued) **1004580711**

Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 000205560CEX
Ship Date : 02/13/2007
TSD : ORD981766124
WS Num: 2
Transporter: TXR000050930
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Parts washer solvent, petroleum naptha
Total Amt Of Waste Stream Generated in Reporting Yr 1: 61.490000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 12.300000000000001

Year : 2007
RCRA Id : ORD096240569
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 00324457SKS
Ship Date : 06/08/2007
TSD : ORD981766124
WS Num: 2
Transporter: TXR000050930
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Parts washer solvent, petroleum naptha
Total Amt Of Waste Stream Generated in Reporting Yr 1: 61.490000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 24.600000000000001

Year : 2007
RCRA Id : ORD096240569
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 000726663FLE
Ship Date : 02/22/2007
TSD : UTD981552177
WS Num: 3
Transporter: ORQ000023150
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 F003 F005
Waste Description: RQ waste flammable liquid
Total Amt Of Waste Stream Generated in Reporting Yr 1: 369.75999999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 112.54000000000001

Year : 2007
RCRA Id : ORD096240569
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 04812
Ship Date : 11/14/2007
TSD : ORD981766124
WS Num: 1

BLOCK GRAPHICS INC (Continued) **1004580711**

Transporter: TXR000050930
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Parts washer solvent, Petroleum Naptha
Total Amt Of Waste Stream Generated in Reporting Yr 1: 245.97999999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 61.490000000000002

Year : 2007
RCRA Id : ORD096240569
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 000791210SKS
Ship Date : 09/02/2007
TSD : ORD981766124
WS Num: 2
Transporter: TXR000050930
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Parts washer solvent, petroleum naptha
Total Amt Of Waste Stream Generated in Reporting Yr 1: 61.490000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 24.600000000000001

Manifest:
Year : 2006
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 05932
Ship Date : 05/25/2006
TSD : WAR000001743
WS Num: Not reported
Transporter: ORQ000023150
Ship Qty : 45
Rpt Unit : GAL
Off Mng : H050
EPA Waste Codes: D001 F003 F005
Waste Description: RQ waste flammable liquid
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 83713
Ship Date : 03/20/2006
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 8
Rpt Unit : GAL

BLOCK GRAPHICS INC (Continued) **1004580711**

Off Mng : H020
EPA Waste Codes: D039
Waste Description: Parts washer solvent, petroleum naphta
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 953947
Ship Date : 10/27/2006
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 8
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Parts washer solvent, petroleum naphta
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 65638
Ship Date : 07/06/2006
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 8
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Parts washer solvent, petroleum naphta
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 65638
Ship Date : 07/06/2006
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 20
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Parts Washer Solvent. Petroleum Naphta
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

BLOCK GRAPHICS INC (Continued) **1004580711**

Year : 2006
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 82702
Ship Date : 02/21/2006
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 15
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Parts Washer Solvent. Petroleum Naphta
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 30872
Ship Date : 12/19/2006
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 18
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Parts Washer Solvent. Petroleum Naphta
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 82066
Ship Date : 09/28/2006
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 22
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Parts Washer Solvent. Petroleum Naphta
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 87589
Ship Date : 04/18/2006

BLOCK GRAPHICS INC (Continued) **1004580711**

TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 14
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Parts Washer Solvent. Petroleum Naphta
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 76016
Ship Date : 02/02/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 4
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 2032
Ship Date : 02/05/2004
TSD : TND000772186
WS Num: Not reported
Transporter: ORQ000006221
Ship Qty : 30
Rpt Unit : GAL
Off Mng : H050
EPA Waste Codes: D001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 78611
Ship Date : 10/04/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930

BLOCK GRAPHICS INC (Continued) **1004580711**

Ship Qty : 24
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 13118
Ship Date : 06/11/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 24
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 3053
Ship Date : 03/04/2004
TSD : TND000772186
WS Num: Not reported
Transporter: ORQ000006221
Ship Qty : 25
Rpt Unit : GAL
Off Mng : H050
EPA Waste Codes: D001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 4339
Ship Date : 05/26/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 4
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

BLOCK GRAPHICS INC (Continued) **1004580711**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 82184
Ship Date : 09/10/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 4
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 72737
Ship Date : 02/17/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 23
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 71984
Ship Date : 02/02/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 4
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator

BLOCK GRAPHICS INC (Continued) **1004580711**

Manifest : 68357
Ship Date : 09/10/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 4
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Click this hyperlink while viewing on your computer to access
38 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 16688
Ship Date : 05/26/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: ORQ000006221
Ship Qty : 4
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 15866
Ship Date : 11/19/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 21
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 7205
Ship Date : 07/22/2004
TSD : TND000772186

BLOCK GRAPHICS INC (Continued) **1004580711**

WS Num: Not reported
Transporter: ORQ000006221
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H050
EPA Waste Codes: D001
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD096240569
Inactive : Not reported
Status: Small quantity generator
Manifest : 88400
Ship Date : 12/27/2004
TSD : ORD981766124
WS Num: Not reported
Transporter: TXR000050930
Ship Qty : 8
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D039
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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30
SW
< 1/8
0.107 mi.
567 ft.

HEATING OIL TANK **OR LUST** **S120851364**
5920 NE BRYANT ST **N/A**
PORTLAND, OR 97218

Relative:
Lower

Actual:
13 ft.

LUST:
Region: North Western Region
Facility ID: 26-17-0583
Cleanup Received Date: 05/24/2017
Cleanup Start Date: Not reported
Cleanup Complete Date: 09/12/2017
Decode for Region: North West Region

D31
WSW
< 1/8
0.110 mi.
581 ft.

BLOCK BUSINESS FORMS INC **OR UST** **1000172613**
5812 NE SKYPORT WAY **N/A**
PORTLAND, OR 97218

Site 1 of 4 in cluster D

Relative:
Lower

Actual:
13 ft.

UST:
Facility ID: 4986
Facility Telephone: (503) 287-0343
Permittee Name: JANET TAYLOR, VP/GENERAL MANAGER
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 2
Number of Tanks: 2

D32 **PACIFIC TRUCK COLORS INC** **RCRA NonGen / NLR** **1000172682**
WSW **5536 NE SKYPORT WAY** **ORD055974182**
1/8-1/4 **PORTLAND, OR 97218**
0.131 mi.
690 ft. **Site 2 of 4 in cluster D**

Relative:
Lower

Actual:
13 ft.

RCRA NonGen / NLR:

Date form received by agency:	08/02/1993
Facility name:	PACIFIC TRUCK COLORS INC
Facility address:	5536 NE SKYPORT WAY PORTLAND, OR 97218
EPA ID:	ORD055974182
Mailing address:	PO BOX 1409 TUALATIN, OR 97062
Contact:	DEAN ROSE
Contact address:	PO BOX 1409 TUALATIN, OR 97062
Contact country:	US
Contact telephone:	503-692-7247
Contact email:	DEAN@PACIFICTRUCKCOLORS.COM
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	PACIFIC TRUCK COLORS INC
Owner/operator address:	PO BOX 1409 TUALATIN, OR 97062
Owner/operator country:	US
Owner/operator telephone:	503-692-7247
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	08/02/1993
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	04/01/1992
Site name:	PACIFIC TRUCK COLORS INC

PACIFIC TRUCK COLORS INC (Continued) **1000172682**

Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Date form received by agency: 04/01/1992
Site name: TRUCK COLORS, INC
Classification: Not a generator, verified

Violation Status: No violations found

D33 **ROADMASTER INC** **RCRA NonGen / NLR** **1000190475**
WSW **5602 NE SKYPORT WAY** **FINDS** **ORD987173267**
1/8-1/4 **PORTLAND, OR 97218** **ECHO**
0.131 mi.
690 ft. **Site 3 of 4 in cluster D**

Relative:
Lower

Actual:
13 ft.

RCRA NonGen / NLR:
Date form received by agency: 01/25/1990
Facility name: ROADMASTER INC
Facility address: 5602 NE SKYPORT WAY
PORTLAND, OR 97218
EPA ID: ORD987173267
Mailing address: NOT IN FILE
NOT IN FILE, OR
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: JERRY EDWARDS
Owner/operator address: Not reported
Not reported
Owner/operator country: Not reported
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No

ROADMASTER INC (Continued) **1000190475**

Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/15/1989
Site name: ROADMASTER INC
Classification: Not a generator, verified

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

FINDS:

Registry ID: 110004796481

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ROADMASTER INC (Continued) **1000190475**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000190475
Registry ID: 110004796481
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110004796481

D34
WSW
1/8-1/4
0.133 mi.
701 ft.

Relative:
Lower

Actual:
13 ft.

SHERWIN WILLIAMS CO #4383
5640 NE SKYPORT WAY
PORTLAND, OR 97218

Site 4 of 4 in cluster D

RCRA-LQG **1000371857**
OR HAZMAT **ORD000602490**
FINDS
ECHO
OR HSIS
OR MANIFEST

RCRA-LQG:
Date form received by agency: 12/31/2017
Facility name: SHERWIN WILLIAMS CO #4383
Facility address: 5640 NE SKYPORT WAY
PORTLAND, OR 97218
EPA ID: ORD000602490
Mailing address: 5640 NE SKYPORT WY
PORTLAND, OR 97218
Contact: MIKE BERGSTROM
Contact address: 5640 NE SKYPORT WAY
PORTLAND, OR 97218
Contact country: US
Contact telephone: 503-249-0222
Contact email: SWP4383@SHERWIN.COM
EPA Region: 10
Land type: Private
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:
Owner/operator name: SHERWIN-WILLIAMS CO
Owner/operator address: 101 PROSPECT AVE
CLEVELAND, OH 44115
Owner/operator country: US
Owner/operator telephone: 216-566-2000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Owner/Op start date: 12/31/2017
Owner/Op end date: Not reported

Owner/operator name: SHERWIN-WILLIAMS CO
Owner/operator address: 101 PROSPECT AVE
CLEVELAND, OH 44115
Owner/operator country: US
Owner/operator telephone: 216-566-2000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 12/31/2017
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: NA
. Waste name: NA

Historical Generators:
Date form received by agency: 12/31/2016
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2015
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2015
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: D001

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 12/31/2014
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2013
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2013
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2013
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 12/31/2012
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2012
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2011
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2011
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2011
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 12/31/2010
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2009
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

Date form received by agency: 12/30/2009
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 12/31/2008
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

Date form received by agency: 12/31/2007
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

Date form received by agency: 12/31/2007
Site name: SHERWIN WILLIAMS CO #4383
Classification: Large Quantity Generator

Date form received by agency: 07/18/2007
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 12/31/2006
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 12/31/2004
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 01/01/2004
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 12/31/2003
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 01/10/2003
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 03/01/2002
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 01/16/2002
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 02/16/2001
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 03/01/2000
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 01/19/2000
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 03/05/1999
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 04/28/1998
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Date form received by agency: 03/01/1998
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 01/08/1997
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 03/01/1996
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 01/11/1996
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 02/01/1995
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 03/01/1994
Site name: SHERWIN-WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 01/18/1994
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 01/29/1993
Site name: SHERWIN WILLIAMS CO
Classification: Large Quantity Generator

Date form received by agency: 03/01/1992
Site name: SHERWIN-WILLIAMS CO
Classification: Large Quantity Generator

Biennial Reports:

Last Biennial Reporting Year: 2017

Annual Waste Handled:

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.
Amount (Lbs): 21054

Waste code: D007
Waste name: CHROMIUM
Amount (Lbs): 21054

Waste code: D035
Waste name: METHYL ETHYL KETONE
Amount (Lbs): 33382

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 12328

Waste code: F005
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 12328

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 07/12/2016
Date achieved compliance: 08/26/2016
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 08/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Universal Waste - Small Quantity Handlers
Date violation determined: 10/12/2010
Date achieved compliance: 11/22/2010
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/18/2010
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 10/12/2010
Date achieved compliance: 11/22/2010

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/18/2010
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 03/08/2005
Date achieved compliance: 06/17/2005
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 08/05/2005
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 3600
Final penalty amount: Not reported
Paid penalty amount: 3600

Regulation violated: Not reported
Area of violation: State Statute or Regulation
Date violation determined: 03/08/2005
Date achieved compliance: 05/04/2005
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 04/05/2005
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 03/08/2005
Date achieved compliance: 05/04/2005
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 04/05/2005
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 03/08/2005
Date achieved compliance: 06/17/2005
Violation lead agency: State

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 04/05/2005
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 09/17/1987
Date achieved compliance: 11/16/1987
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/14/1987
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 09/17/1987
Date achieved compliance: 11/16/1987
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/14/1987
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 08/17/1987
Date achieved compliance: 08/17/1987
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 08/17/1987
Date achieved compliance: 08/17/1987
Violation lead agency: State
Enforcement action: Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:

Evaluation date: 07/12/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 08/26/2016
Evaluation lead agency: State

Evaluation date: 05/09/2013
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 10/12/2010
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 11/22/2010
Evaluation lead agency: State

Evaluation date: 10/12/2010
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Universal Waste - Small Quantity Handlers
Date achieved compliance: 11/22/2010
Evaluation lead agency: State

Evaluation date: 03/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: State Statute or Regulation
Date achieved compliance: 05/04/2005
Evaluation lead agency: State

Evaluation date: 03/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 05/04/2005
Evaluation lead agency: State

Evaluation date: 03/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 06/17/2005
Evaluation lead agency: State

Evaluation date: 05/23/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Evaluation date: 01/25/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/17/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 11/16/1987
Evaluation lead agency: State

Evaluation date: 09/17/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 11/16/1987
Evaluation lead agency: State

Evaluation date: 08/17/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 08/17/1987
Evaluation lead agency: State

Evaluation date: 08/17/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 08/17/1987
Evaluation lead agency: State

Evaluation date: 11/30/1983
Evaluation: COMPLIANCE SCHEDULE EVALUATION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

HAZMAT:
Responsble Party: MEDALLION ENVELOPE
RP Company: MEDALLION ENVELOPE
RP Address: 5822 SKYPORT WAY
RP City,St,Zip: PORTLAND 97218
Facility ID: 900149
OERS Number: Not reported
Dept Rsp: PORTLAND BUREAU OF F&R&EMS
Narrative: Not reported
Property Loss: Not reported
Amount Released: Not reported
Service County: Not reported
Service Name: Not reported
Incident Type: Not reported
Civilian Casualty Activity: Not reported
Chemical Name: Not reported
Hazmat Area Affected: Not reported
Hazmat Area Evacuated: Not reported
Hazmat Container Type: Not reported
Hazmat Physical State Released: Not reported
Hazmat Released Into: Not reported
Hazmat Released Volume Units: Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	PORTLAND BUREAU OF F&R&EMS
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	5032437946
Osfm Incident Report Number:	900149
Dept. Responding:	PORTLAND BUREAU OF F&R&EMS
Person Making Report:	PERRY SIGLER
Title:	LT
Agency:	PORTLAND BUREAU OF F&R&EMS
Phone:	5032437946
Date Of Incident:	06/13/1990
Call Time:	12:00:00 AM
In Route:	12:00:00 AM
Arrival:	1:45:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	4:00:00 PM
Dist Of Incident:	PORTLAND BUREAU OF F&R&EMS
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	Not reported
Agency Report Number:	90-24636
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Public Road
Area Type:	Industrial
Responsible Party(Ies):	MEDALLION ENVELOPE
Company:	MEDALLION ENVELOPE
Respcontact:	Not reported
Address:	5822 SKYPORT WAY
Resp City:	PORTLAND
Resp State:	Not reported
Resp ZipCode:	97218
Phone:	Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	Not reported
Cause:	Unknown
Vehicle And Cargo:	0
Fixed Property:	0
Total Loss:	$0.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	5695
Chemical Id:	35430
Incident Id:	900149
Chemical Name:	UNKNOWN CHEMICAL
UNNA:	Not reported
Amount At Risk:	0
Amount Released:	0
Amount Measured:	0
Biological:	False
Radiological:	False

Chemical Id:	35430
Chemical Name:	UNKNOWN CHEMICAL
Hazardous Ingredient:	UNKNOWN CHEMICAL
Hazardous Class 1:	9.0
Hazardous Class 2:	Not reported
Hazardous Rank:	2
Case Number:	Not reported
UNNA Number:	Not reported
EPA Pest Reg:	Not reported
EHA Chem:	Not reported
PSM Chem:	Not reported
CAA 112R Chem:	Not reported

Method:

Method Used Id:	4415
Incident Id:	900149
Identity Method:	5

Released:

Release Behavior Id:	7110
Incident Id:	900149
Behavior:	10

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Narrative:
Narrative Id: 2870
Incident Id: 900149
Incident Narrative: BLUE SUBSTANCE FOUND BUBBLING FROM MANHOLE COVER AS A RESULT OF SEWER PUMP STATION BREAKDOWN. SUBSTANCE WAS IDENTIFIED AS INK RELEASED FROM AOVE NAMED COMPANY. MATERIAL WAS DETERMINED TO BE NON-HAZARDOUS. BLUE SUBSTANCE FOUND BUBBLING FROM MANHOLE COV
Incident Date: 6/13/1990

FINDS:

Registry ID: 110000894523

Environmental Interest/Information System
OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000371857
Registry ID: 110000894523
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110000894523

HSIS:
Facility ID: 015162
Department Or Division Of Company: STORE 4383
Extremely Hazardous Substance: N
Facility Has Written Emergency Plan: Y
Contains 112R: N
NAICS Code 1: 424950
NAICS Desc 1: PAINT, VARNISH, & SUPPLIES WHSLE
NAICS Code 2: 000000
NAICS Desc 2: Not reported
Manager Name: JOHN MORIKIS
Business Phone: 5032490222
Mailing Address: 5640 NE SKYPORT WAY
Mailing City: PORTLAND
Mailing State: OR

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Mailing Zip:	97218
No. of Employees:	20
Day Phone:	5032490222
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	MIKE BERGSTROM
Emergency Procedure:	FRONT OFFICE AREA
Business Type:	PAINT VARNISH WHSLE SALES
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	METHYL ETHYL KETONE
Physical Description:	LIQUID
Case Number:	78933
Facility Id:	015162
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	F
Temperature Description:	CAN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	METHYL ETHYL KETONE
United Nations/north America 4 Digit Class Number:	1193
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	METHYL ETHYL KETONE
United Nations/north America 4 Digit Class Number:	1193
Chemical Abstract Service Identifier Number:	78933
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Y
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	SOLVENT 2
Physical Description:	LIQUID
Case Number:	1330207
Facility Id:	015162
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	F
Description:	CAN

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	XYLENES
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	SOLVENT 2
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	1330207
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	WASTE DEBRIS CONT WITH PAINTS/SEALANTS
Physical Description:	SOLID
Case Number:	00000
Facility Id:	015162
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	D
Description:	STEEL DRUM

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SOLVENTS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE DEBRIS CONT WITH PAINTS/SEALANTS
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	00000
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	SOLVENT BASED COATINGS
Physical Description:	LIQUID
Case Number:	110190
Facility Id:	015162
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	F
Temperature Description:	CAN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	ISOBUTYL ACETATE
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	SOLVENT BASED COATINGS
United Nations/north America 4 Digit Class Number:	1263
Chemical Abstract Service Identifier Number:	110190
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	WATER BASED COATINGS-ACRYLIC
Physical Description:	LIQUID
Case Number:	471341
Facility Id:	015162
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	21
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	F
Temperature Description:	CAN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	CALCIUM CARBONATE
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WATER BASED COATINGS-ACRYLIC
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	471341
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	POWDER BASED COATINGS
Physical Description:	SOLID
Case Number:	7727437
Facility Id:	015162
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	40
Max Amt Possessed During Year CD:	41
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	I
Temperature Description:	FIBER DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	250,000-499,999
Description Of The Avg Qnty Code:	100,000-249,999
Most Hazardous Ingridient:	BARIUM SULFATE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	POWDER BASED COATINGS
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	7727437
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	LACQUER THINNER-ISOBUTYL ACETATE
Physical Description:	LIQUID
Case Number:	110190
Facility Id:	015162
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	F
Temperature Description:	CAN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ISOBUTYL ACETATE
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LACQUER THINNER-ISOBUTYL ACETATE
United Nations/north America 4 Digit Class Number:	1263
Chemical Abstract Service Identifier Number:	110190
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	BUTYL ACETATE
Physical Description:	LIQUID
Case Number:	123864
Facility Id:	015162
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	F
Temperature Description:	CAN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	BUTYL ACETATE
United Nations/north America 4 Digit Class Number:	1123
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	BUTYL ACETATE
United Nations/north America 4 Digit Class Number:	1123
Chemical Abstract Service Identifier Number:	123864
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	1-METHOXY-2-PROPANOL
Physical Description:	LIQUID
Case Number:	107982
Facility Id:	015162
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	MONOPROPYLENE GLYCOL METHYL ETHER
United Nations/north America 4 Digit Class Number:	3092
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	1-METHOXY-2-PROPANOL
United Nations/north America 4 Digit Class Number:	3092
Chemical Abstract Service Identifier Number:	107982
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	WASTE PAINT AND SOLVENTS
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	015162
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ACETONE
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE PAINT AND SOLVENTS
United Nations/north America 4 Digit Class Number:	1263
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	ACETONE
Physical Description:	LIQUID
Case Number:	67641
Facility Id:	015162
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	F
Description:	CAN

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ACETONE
United Nations/north America 4 Digit Class Number:	1090
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETONE
United Nations/north America 4 Digit Class Number:	1090
Chemical Abstract Service Identifier Number:	67641
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Y
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

OR MANIFEST:

Manifest Year:	Manifest Year - 2017
EPA Id:	ORD000602490
Inactive Status:	Not reported
Organization Name:	Not reported
Contact Name:	Mike Bergstrom
Contact Telephone Number:	Not reported
Mailing Address:	5640 NE Skyport Way
Mailing City/State/Zip:	Portland, OR 97218

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Manifest:
Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016563094JJK
Ship Date : 02/14/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016564096JJK
Ship Date : 04/20/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 922.8725

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 017074488JJK
Ship Date : 09/11/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1179.1

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 017074922JJK

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Ship Date : 11/14/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 816.3

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016563094JJK
Ship Date : 02/14/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: F003
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016564096JJK
Ship Date : 04/20/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: F003
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 922.8725

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 017074488JJK
Ship Date : 09/11/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Off Mng : H061
EPA Waste Codes: F003
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1179.1

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 017074922JJK
Ship Date : 11/14/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: F003
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 816.3

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016563094JJK
Ship Date : 02/14/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: F005
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016564096JJK
Ship Date : 04/20/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: F005
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 922.8725

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Click this hyperlink while viewing on your computer to access
405 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 017074488JJK
Ship Date : 09/11/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: F005
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1179.1

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 017074922JJK
Ship Date : 11/14/2017
TSD : IND000646943
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: F005
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3371.7725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 816.3

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016563100JJK
Ship Date : 02/14/2017
TSD : KSD980633259
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Solvent/Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7284.5705
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1484.3055

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Status: Large quantity generator
Manifest : 016564097JJK
Ship Date : 04/20/2017
TSD : KSD980633259
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Solvent/Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7284.5705
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1310.615

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 017074006JJK
Ship Date : 06/26/2017
TSD : KSD980633259
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Solvent/Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7284.5705
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1587.25

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 017074489JJK
Ship Date : 09/11/2017
TSD : KSD980633259
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Solvent/Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7284.5705
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1269.8

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 017074923JJK
Ship Date : 11/14/2017
TSD : KSD980633259
WS Num: 2
Transporter: Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Solvent/Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7284.5705
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1269.8

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016563100JJK
Ship Date : 02/14/2017
TSD : KSD980633259
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Solvent/Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7284.5705
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1484.3055

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016564097JJK
Ship Date : 04/20/2017
TSD : KSD980633259
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Solvent/Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7284.5705
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1310.615

Year : 2017
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 017074006JJK
Ship Date : 06/26/2017
TSD : KSD980633259
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Solvent/Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7284.5705

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 1587.25

Manifest:
Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822537FLE
Ship Date : 02/11/2016
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4557.675
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1696.09

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007830482FLE
Ship Date : 04/21/2016
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4557.675
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2544.135

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016562544JJK
Ship Date : 11/14/2016
TSD : KSD980633259
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4557.675
Total Amt Of Waste Stream Generated in Reporting Yr 2: 317.45

Year : 2016

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822537FLE
Ship Date : 02/11/2016
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4557.675
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1696.09

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007830482FLE
Ship Date : 04/21/2016
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4557.675
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2544.135

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016562544JJK
Ship Date : 11/14/2016
TSD : KSD980633259
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4557.675
Total Amt Of Waste Stream Generated in Reporting Yr 2: 317.45

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 008920783JJK
Ship Date : 02/10/2016
TSD : IND000646943

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1247.125

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 009419014FLE
Ship Date : 07/12/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 544.2

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 009425578FLE
Ship Date : 09/20/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 997.7

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 009425723FLE
Ship Date : 10/11/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D035

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 181.4

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405 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 009467800FLE
Ship Date : 04/07/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 816.3

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 009469170FLE
Ship Date : 06/01/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 907

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016562541JJK
Ship Date : 11/09/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 362.8

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 016562807JJK
Ship Date : 12/02/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D035
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 680.25

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 008920783JJK
Ship Date : 02/10/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F003
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1247.125

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 009419014FLE
Ship Date : 07/12/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F003
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 544.2

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 009425578FLE
Ship Date : 09/20/2016

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F003
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 997.7

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 009425723FLE
Ship Date : 10/11/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F003
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 181.4

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 009467800FLE
Ship Date : 04/07/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F003
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 816.3

Year : 2016
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 009469170FLE
Ship Date : 06/01/2016
TSD : IND000646943
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

EPA Waste Codes: F003
Waste Description: Off-Spec and Old Waste Paint Solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5736.775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 907

Manifest:
Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822221FLE
Ship Date : 03/02/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1696.09

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822305FLE
Ship Date : 05/07/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1156.425

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822346FLE
Ship Date : 07/02/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 1349.1625

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822417FLE
Ship Date : 09/17/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1734.6375

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822487FLE
Ship Date : 12/02/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2120.1125

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 008206524FLE
Ship Date : 06/16/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1040.329

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Manifest : 008207132FLE
Ship Date : 10/06/2015
TSD : KSD980633259
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 451.2325

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822221FLE
Ship Date : 03/02/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1696.09

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822305FLE
Ship Date : 05/07/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1156.425

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822346FLE
Ship Date : 07/02/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1349.1625

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405 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822417FLE
Ship Date : 09/17/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1734.6375

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822487FLE
Ship Date : 12/02/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2120.1125

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 008206524FLE
Ship Date : 06/16/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1040.329

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 008207132FLE
Ship Date : 10/06/2015
TSD : KSD980633259
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 451.2325

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822221FLE
Ship Date : 03/02/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1696.09

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822305FLE
Ship Date : 05/07/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1156.425

Year : 2015
RCRA Id : ORD000602490

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Inactive : Not reported
Status: Large quantity generator
Manifest : 007822346FLE
Ship Date : 07/02/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1349.1625

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822417FLE
Ship Date : 09/17/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1734.6375

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007822487FLE
Ship Date : 12/02/2015
TSD : CAD008252405
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2120.1125

Year : 2015
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 008206524FLE
Ship Date : 06/16/2015
TSD : CAD008252405
WS Num: 1

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Off spec and Old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 9547.989
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1040.329

Manifest:
Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007017822FLE
Ship Date : 02/28/2014
TSD : UTD981552177
WS Num: 1
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Off Spec and old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2392.2125000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2120.1125000000002

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006491074FLE
Ship Date : 05/09/2014
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4249.2950000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1088.4000000000001

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006490442FLE
Ship Date : 07/07/2014
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4249.2950000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 578.21249999999998

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006490598FLE
Ship Date : 08/11/2014
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4249.2950000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1734.6375

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007165604FLE
Ship Date : 09/23/2014
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4249.2950000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 848.04499999999996

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006491057FLE
Ship Date : 05/09/2014
TSD : IND000646943
WS Num: 4
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 136.05000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 136.05000000000001

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007486454FLE
Ship Date : 03/14/2014
TSD : IND000646943
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: off-spec and old waste paint solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4897.8000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1179.0999999999999

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006490443FLE
Ship Date : 07/07/2014
TSD : IND000646943
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: off-spec and old waste paint solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4897.8000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1088.4000000000001

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006490598FLE
Ship Date : 08/11/2014
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: off-spec and old waste paint solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4897.8000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 544.20000000000005

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007165604FLE
Ship Date : 09/23/2014

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: off-spec and old waste paint solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4897.8000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 634.89999999999998

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405 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007486265FLE
Ship Date : 01/17/2014
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: off-spec and old waste paint solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4897.8000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1451.2

Year : 2014
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006491057FLE
Ship Date : 05/09/2014
TSD : IDD073114654
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035
Waste Description: Off Spec and old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2392.2125000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Manifest:
Year : 2013
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 0020177997FL
Ship Date : 09/05/2013

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

TSD : UTD981552177
WS Num: 1
Transporter: OQR000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Off Spec and old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8056.8810000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2120.1125000000002

Year : 2013
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 007017693FLE
Ship Date : 11/25/2013
TSD : UTD981552177
WS Num: 1
Transporter: OQR000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Off Spec and old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8056.8810000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2505.5875000000001

Year : 2013
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004867061FLE
Ship Date : 03/23/2013
TSD : UTD981552177
WS Num: 1
Transporter: OQR000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Off Spec and old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8056.8810000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1522.8530000000001

Year : 2013
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004867158FLE
Ship Date : 05/28/2013
TSD : UTD981552177
WS Num: 1
Transporter: OQR000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

EPA Waste Codes: D001 D035
Waste Description: Off Spec and old Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8056.8810000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1908.328

Year : 2013
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 005093417FLE
Ship Date : 03/05/2013
TSD : IND000646943
WS Num: 2
Transporter: ORD009221398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: off-spec and old waste paint solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6076.8999999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1179.0999999999999

Year : 2013
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 005093516FLE
Ship Date : 06/27/2013
TSD : IND000646943
WS Num: 2
Transporter: ORD009221398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: off-spec and old waste paint solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6076.8999999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1179.0999999999999

Year : 2013
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 005094974FLE
Ship Date : 05/01/2013
TSD : IND000646943
WS Num: 2
Transporter: ORD009221398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: off-spec and old waste paint solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6076.8999999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1179.0999999999999

Year : 2013

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 005095308FLE
Ship Date : 08/29/2013
TSD : IND000646943
WS Num: 2
Transporter: ORD009221398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: off-spec and old waste paint solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6076.8999999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1360.5

Year : 2013
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006488776FLE
Ship Date : 10/29/2013
TSD : IND000646943
WS Num: 2
Transporter: ORD009221398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: off-spec and old waste paint solids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6076.8999999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1179.0999999999999

Manifest:
Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206337FLE
Ship Date : 04/29/2012
TSD : UTD981552177
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Manifest : 004866883FLE
Ship Date : 09/12/2012
TSD : UTD981552177
WS Num: 1
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004866955FLE
Ship Date : 12/04/2012
TSD : UTD981552177
WS Num: 1
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206559FLE
Ship Date : 06/28/2012
TSD : UTD981552177
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003085987FLE
Ship Date : 06/21/2012
TSD : UTD981552177
WS Num: 1
Transporter: ORQ000026953
Ship Qty : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003085378FLE
Ship Date : 02/17/2012
TSD : UTD981552177
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003085934FLE
Ship Date : 04/12/2012
TSD : UTD981552177
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206076FLE
Ship Date : 02/10/2012
TSD : UTD981552177
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206761FLE
Ship Date : 08/29/2012
TSD : IND000646943
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004531922FLE
Ship Date : 12/27/2012
TSD : IND000646943
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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405 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206762FLE
Ship Date : 08/16/2012
TSD : IND000646943
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Status: Large quantity generator
Manifest : 004206558FLE
Ship Date : 07/06/2012
TSD : IND000646943
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206338FLE
Ship Date : 04/18/2012
TSD : IND000646943
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206075FLE
Ship Date : 01/31/2012
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004531626FLE
Ship Date : 11/07/2012
TSD : IND000646943
WS Num: 2
Transporter: ORD009227398

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004531921FLE
Ship Date : 12/27/2012
TSD : UTD981552177
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003 D035
Waste Description: Aerosol Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 0000328111
Ship Date : 11/12/2012
TSD : KSD980633259
WS Num: 4
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004531628
Ship Date : 11/16/2012
TSD : KSD980633259
WS Num: 4
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:

Year :	2011
RCRA Id :	ORD000602490
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	003085689FLE
Ship Date :	03/09/2011
TSD :	UTD981552177
WS Num:	1
Transporter:	ORQ000026953
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H040
EPA Waste Codes:	D001 D035
Waste Description:	Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1:	5722.2629999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2:	1060.2829999999999

Year :	2011
RCRA Id :	ORD000602490
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	003085750FLE
Ship Date :	06/03/2011
TSD :	UTD981552177
WS Num:	1
Transporter:	ORQ000026953
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H040
EPA Waste Codes:	D001 D035
Waste Description:	Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1:	5722.2629999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2:	1696.0899999999999

Year :	2011
RCRA Id :	ORD000602490
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	003085799FLE
Ship Date :	08/23/2011
TSD :	UTD981552177
WS Num:	1
Transporter:	ORQ000026953
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H040
EPA Waste Codes:	D001 D035
Waste Description:	Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1:	5722.2629999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2:	1269.8

Year : 2011

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003085842FLE
Ship Date : 11/02/2011
TSD : UTD981552177
WS Num: 1
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5722.2629999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1696.0899999999999

Year : 2011
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 002538883JJK
Ship Date : 07/28/2011
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6258.3000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 544.20000000000005

Year : 2011
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006908462JJK
Ship Date : 04/05/2011
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6258.3000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 907

Year : 2011
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006908334JJK
Ship Date : 02/18/2011
TSD : KSD980633259

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6258.3000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 907

Year : 2011
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004205100FLE
Ship Date : 09/27/2011
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6258.3000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1451.2

Year : 2011
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 002538698JJK
Ship Date : 06/02/2011
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6258.3000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1179.0999999999999

Year : 2011
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 004205345FLE
Ship Date : 11/21/2011
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6258.3000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1269.8

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Manifest:
Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 005569029
Ship Date : 04/23/2010
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1646.2049999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1646.2049999999999

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003991365
Ship Date : 10/27/2010
TSD : UTD981552177
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D003 D035
Waste Description: Aerosol Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 45.350000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 45.350000000000001

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003085563
Ship Date : 07/19/2010
TSD : UTD981552177
WS Num: 3
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D007 D035

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8563.4405000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1484.3054999999999

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003085593
Ship Date : 10/15/2010
TSD : UTD981552177
WS Num: 3
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D007 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8563.4405000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1133.75

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003085636
Ship Date : 12/17/2010
TSD : UTD981552177
WS Num: 3
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D007 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8563.4405000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1060.2829999999999

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003991365
Ship Date : 10/27/2010
TSD : UTD981552177
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D007 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8563.4405000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 680.25

Year : 2010
RCRA Id : ORD000602490

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Inactive : Not reported
Status: Large quantity generator
Manifest : 003991401
Ship Date : 11/05/2010
TSD : UTD981552177
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D007 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8563.4405000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2721

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003085501
Ship Date : 02/25/2010
TSD : UTD981552177
WS Num: 3
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D007 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8563.4405000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1484.3054999999999

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003991499
Ship Date : 12/17/2010
TSD : KSD980633259
WS Num: 4
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5256.0649999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 907

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 006908046
Ship Date : 09/14/2010
TSD : KSD980633259
WS Num: 4

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5256.0649999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 997.70000000000005

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Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 005569230
Ship Date : 07/09/2010
TSD : KSD980633259
WS Num: 4
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5256.0649999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 698.38999999999999

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003999385
Ship Date : 02/23/2010
TSD : KSD980633259
WS Num: 4
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5256.0649999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1133.75

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003991365
Ship Date : 10/20/2010
TSD : KSD980633259
WS Num: 4
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5256.0649999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 340.125

Year : 2010
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 005569068
Ship Date : 05/07/2010
TSD : KSD980633259
WS Num: 4
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5256.0649999999996
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1179.0999999999999

Manifest:
Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 002969522
Ship Date : 07/24/2009
TSD : UTD981552177
WS Num: 2
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6660.1009999999997
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1696.0899999999999

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 002933463
Ship Date : 11/09/2009
TSD : UTD981552177
WS Num: 2
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Total Amt Of Waste Stream Generated in Reporting Yr 1: 6660.1009999999997
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1995.4000000000001

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 000964178
Ship Date : 02/06/2009
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3395.808
Total Amt Of Waste Stream Generated in Reporting Yr 2: 521.52499999999998

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003999180
Ship Date : 12/11/2009
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1696.5435
Total Amt Of Waste Stream Generated in Reporting Yr 2: 636.26049999999998

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003006793
Ship Date : 10/08/2009
TSD : UTD981552177
WS Num: 2
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6660.1009999999997
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1060.2829999999999

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Status: Large quantity generator
Manifest : 003997919
Ship Date : 10/02/2009
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3395.808
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.14999999999998

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 002594425
Ship Date : 03/25/2009
TSD : UTD981552177
WS Num: 2
Transporter: ORQ000026953
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001 D035
Waste Description: Solvent-based paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6660.1009999999997
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1908.328

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003999180
Ship Date : 12/11/2009
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3395.808
Total Amt Of Waste Stream Generated in Reporting Yr 2: 907

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 000964178
Ship Date : 02/06/2009
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1696.5435
Total Amt Of Waste Stream Generated in Reporting Yr 2: 636.26049999999998

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003997723
Ship Date : 07/31/2009
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3395.808
Total Amt Of Waste Stream Generated in Reporting Yr 2: 558.71199999999999

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Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003997546
Ship Date : 06/05/2009
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3395.808
Total Amt Of Waste Stream Generated in Reporting Yr 2: 637.62099999999998

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003999195
Ship Date : 12/08/2009
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

EPA Waste Codes: D001 D035 F003 F005
Waste Description: Solvent/paint waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1696.5435
Total Amt Of Waste Stream Generated in Reporting Yr 2: 424.02249999999998

Year : 2009
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 000964348
Ship Date : 03/27/2009
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003 F005
Waste Description: Solids contaminted with solvent/paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3395.808
Total Amt Of Waste Stream Generated in Reporting Yr 2: 362.80000000000001

Manifest:
Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001990248
Ship Date : 08/08/2008
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4949.9525000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 336.04349999999999

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001990181
Ship Date : 07/11/2008
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 17589.904500000001

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 2544.1350000000002

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 000664041
Ship Date : 12/19/2008
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 17589.904500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1060.0562500000001

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001990248
Ship Date : 08/08/2008
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 17589.904500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 848.04499999999996

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001990140
Ship Date : 06/20/2008
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 17589.904500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 848.04499999999996

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Manifest : 001990394
Ship Date : 10/03/2008
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 17589.904500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1696.0899999999999

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001990140
Ship Date : 06/20/2008
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4949.9525000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 534.22299999999996

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003988945
Ship Date : 11/14/2008
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4949.9525000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 292.05399999999997

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003988810
Ship Date : 09/12/2008
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4949.9525000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 268.01850000000002

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001990181
Ship Date : 07/11/2008
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4949.9525000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 328.334

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Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001989633
Ship Date : 02/15/2008
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 17589.904500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 424.02249999999998

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001989949
Ship Date : 04/18/2008
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4949.9525000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 292.05399999999997

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001990453
Ship Date : 10/24/2008
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4949.9525000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 544.20000000000005

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983237
Ship Date : 01/04/2008
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 17589.904500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2120.1125000000002

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001990033
Ship Date : 05/09/2008
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4949.9525000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 290.24000000000001

Year : 2008
RCRA Id : ORD000602490

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Inactive : Not reported
Status: Large quantity generator
Manifest : 001983492
Ship Date : 01/25/2008
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4949.9525000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983237
Ship Date : 01/14/2008
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4949.9525000000003
Total Amt Of Waste Stream Generated in Reporting Yr 2: 181.40000000000001

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001989632
Ship Date : 02/15/2008
TSD : IND000646943
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Off-spec/old age paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 453.5
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003988507
Ship Date : 05/19/2008
TSD : KSD980633259
WS Num: 1

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 17589.904500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1060.0562500000001

Year : 2008
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 003988777
Ship Date : 08/22/2008
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 17589.904500000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 204.982

Manifest:
Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001668980JJK
Ship Date : 06/08/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09
Total Amt Of Waste Stream Generated in Reporting Yr 2: 848.04999999999995

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001668928JJK
Ship Date : 05/18/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4926.3699999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001668642JJK
Ship Date : 01/26/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4926.3699999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 436.72000000000003

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983613JJK
Ship Date : 06/29/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09
Total Amt Of Waste Stream Generated in Reporting Yr 2: 848.04999999999995

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983188JJK
Ship Date : 12/14/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4926.3699999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 181.40000000000001

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001668783JJK
Ship Date : 03/16/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09
Total Amt Of Waste Stream Generated in Reporting Yr 2: 848.04999999999995

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983942JJK
Ship Date : 11/02/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09
Total Amt Of Waste Stream Generated in Reporting Yr 2: 424.01999999999998

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001668817JJK
Ship Date : 04/04/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09
Total Amt Of Waste Stream Generated in Reporting Yr 2: 636.25999999999999

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983771JJK
Ship Date : 08/31/2007

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4926.3699999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 399.07999999999998

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983188JJK
Ship Date : 12/14/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09
Total Amt Of Waste Stream Generated in Reporting Yr 2: 424.01999999999998

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Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983649JJK
Ship Date : 07/20/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4926.3699999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 363.70999999999998

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001668980JJK
Ship Date : 06/08/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4926.3699999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 136.05000000000001

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001668870JJK
Ship Date : 04/27/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09
Total Amt Of Waste Stream Generated in Reporting Yr 2: 424.01999999999998

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983613JJK
Ship Date : 06/29/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4926.3699999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983876JJK
Ship Date : 10/16/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 1021.74

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001668705JJK
Ship Date : 02/16/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4926.3699999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 307.93000000000001

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983716JJK
Ship Date : 08/10/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09
Total Amt Of Waste Stream Generated in Reporting Yr 2: 424.01999999999998

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001983771JJK
Ship Date : 08/31/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1696.0899999999999

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Manifest : 001668928JJK
Ship Date : 05/18/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15579.09
Total Amt Of Waste Stream Generated in Reporting Yr 2: 848.04999999999995

Year : 2007
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 001668817JJK
Ship Date : 04/04/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4926.3699999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 276.18000000000001

Manifest:
Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 68562
Ship Date : 12/22/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1540
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 71997
Ship Date : 05/12/2006
TSD : WAD067548966

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1600
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 72127
Ship Date : 07/07/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1733
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 71997
Ship Date : 05/12/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1000
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 72127
Ship Date : 07/07/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1600
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 72249
Ship Date : 08/18/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1111
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 71773
Ship Date : 02/23/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 500
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 71845
Ship Date : 03/17/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 800
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Inactive : Not reported
Status: Large quantity generator
Manifest : 65562
Ship Date : 12/27/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 3300
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 65690
Ship Date : 09/22/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 998
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 65892
Ship Date : 11/10/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 9900
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 65836

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Ship Date : 10/20/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 770
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 71677
Ship Date : 01/25/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 500
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 71632
Ship Date : 01/11/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1200
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 71773
Ship Date : 02/23/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 2800
Rpt Unit : LB

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 71845
Ship Date : 03/17/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 400
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 71632
Ship Date : 01/11/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 800
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 65836
Ship Date : 10/20/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1980
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 71934
Ship Date : 04/14/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1200
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste Paint and solvent from blending and cleaning operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 65892
Ship Date : 11/10/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 770
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D035 F003 F005
Waste Description: Waste Solids (paint sticks, cups, wipers) from blending and cleaning ops.
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2004
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 70498
Ship Date : 08/09/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: WAD067548966
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD000602490
Inactive : Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Status: Large quantity generator
Manifest : 70549
Ship Date : 09/01/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 155
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 70665
Ship Date : 11/03/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 70607
Ship Date : 10/06/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: WAD067548966
Ship Qty : 550
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 70434
Ship Date : 07/07/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Ship Qty : 155
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 70197
Ship Date : 03/05/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 715
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 70706
Ship Date : 12/01/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD000602490
Inactive : Not reported
Status: Large quantity generator
Manifest : 70777
Ship Date : 12/29/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 440
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

SHERWIN WILLIAMS CO #4383 (Continued) **1000371857**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year :	2004
RCRA Id :	ORD000602490
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	70407
Ship Date :	06/22/2004
TSD :	WAD067548966
WS Num:	Not reported
Transporter:	ORD009227398
Ship Qty :	550
Rpt Unit :	GAL
Off Mng :	H061
EPA Waste Codes:	D001 D035 F003 F005
Waste Description:	Not reported

Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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35 **HEATING OIL TANK** **OR LUST** **S104304490**
South **6801 NE 63RD AVE** **N/A**
1/8-1/4 **PORTLAND, OR 97218**
0.138 mi.
726 ft.

Relative: **Lower**
Actual: **19 ft.**

LUST:

Region:	North Western Region
Facility ID:	26-00-0207
Cleanup Received Date:	02/16/2000
Cleanup Start Date:	02/16/2000
Cleanup Complete Date:	**05/31/2000**
Decode for Region:	**North West Region**

E36 **SAPA PROFILES** **RCRA NonGen / NLR** **1015754508**
West **7320 NE 55TH AVE** **ORSTATE09275**
1/8-1/4 **PORTLAND, OR 97218**
0.159 mi.
837 ft. **Site 1 of 3 in cluster E**

Relative: **Lower**
Actual: **13 ft.**

RCRA NonGen / NLR:

Date form received by agency:	01/08/2013
Facility name:	SAPA PROFILES
Facility address:	7320 NE 55TH AVE PORTLAND, OR 97218-1218
EPA ID:	ORSTATE09275
Contact:	Not reported
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	10
Land type:	Other land type
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

SAPA PROFILES (Continued) **1015754508**

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Facility Has Received Notices of Violations:
- Regulation violated: Not reported
- Area of violation: State Statute or Regulation
- Date violation determined: 01/07/2013
- Date achieved compliance: 01/23/2013
- Violation lead agency: State
  - Enforcement action: NOTICE OF NONCOMPLIANCE
  - Enforcement action date: 01/07/2013
  - Enf. disposition status: Not reported
  - Enf. disp. status date: Not reported
  - Enforcement lead agency: State
  - Proposed penalty amount: Not reported
  - Final penalty amount: Not reported
  - Paid penalty amount: Not reported

Evaluation Action Summary:
- Evaluation date: 01/07/2013
- Evaluation: NON-FINANCIAL RECORD REVIEW
- Area of violation: State Statute or Regulation
- Date achieved compliance: 01/23/2013
- Evaluation lead agency: State

E37 **SAPA PROFILES INC** **OR AST** **S105745852**
West **7320 NE 55TH AVE** **OR SPILLS** **N/A**
1/8-1/4 **PORTLAND, OR 97218** **OR HSIS**
0.159 mi. **OR NPDES**
837 ft. **Site 2 of 3 in cluster E**

Relative: **Lower**
Actual: **13 ft.**

AST:
- Facility Id: 062246
- Hazardous Substance: ARGON
- Reporting Quantities: Not reported
- Quantity Units: Not reported
- Physical State: Not reported
- Storage 1: Above ground tank
- County: MULTNOMAH
- Owner-Operator Name: PAT
- Direct Site Phone: 5038023000
- Report Class: Annual
- Report Year: 2017

SAPA PROFILES INC (Continued) **S105745852**

Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 062246
Hazardous Substance: ARGON 25%/CARBON DIOXIDE 75%
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: PAT
Direct Site Phone: 5038023000
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

OR SPILLS:
Facility ID: 2018-2809
Incident Status: Closed
Material: Green Dye
Quantity: Unknown
Unit of Measure: Ounce
Release Date: 12/18/2018
Description: Portland BES reported a positive dye test in the Columbia slough. This is a private dye test of industrial site from 0745-0800. They are testing a private catch basins and drains go into the Columbia slough.
Lat/Long: 45.57552 / -122.60519
Source: Business
Media: Surface Water
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

HSIS:
Facility ID: 062246
Department Or Division Of Company: FABRICATED COMPONENTS
Extremely Hazardous Substance: N
Facility Has Written Emergency Plan: Y
Contains 112R: N
NAICS Code 1: 332999
NAICS Desc 1: ALL OTHER MISC FABRICATED MTL PRODUCT MFG
NAICS Code 2: 000000
NAICS Desc 2: Not reported
Manager Name: JOHN VAN DEN NIEUWELAAR
Business Phone: 5038023054
Mailing Address: PO BOX 11268
Mailing City: PORTLAND

SAPA PROFILES INC (Continued) **S105745852**

Mailing State:	OR
Mailing Zip:	97211
No. of Employees:	110
Day Phone:	5038023148
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	TROY CAMERON
Emergency Procedure:	MAIN OFFICE / FABRICATED COMPONENTS
Business Type:	FABRICATION OF ALUMINUM PARTS
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	ARGON
Physical Description:	GAS
Case Number:	7440371
Facility Id:	062246
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L

SAPA PROFILES INC (Continued) **S105745852**

Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1006
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON
United Nations/north America 4 Digit Class Number:	1006
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ARGON 25%/CARBON DIOXIDE 75%
Physical Description:	GAS
Case Number:	124389
Facility Id:	062246
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L

SAPA PROFILES INC (Continued) **S105745852**

Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON 25%/CARBON DIOXIDE 75%
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	124389
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NPDES:

WQ File Nbr:	103836
Legal Name:	Hydro Extrusion Portland, Inc.
Region:	Not reported
Pri SIC:	3499
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported

SAPA PROFILES INC (Continued) **S105745852**

Category:	Not reported
Permit Type:	G12COLS
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	103836
Legal Name:	Hydro Extrusion Portland, Inc.
Region:	Not reported
Pri SIC:	3499
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12L
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	103836
Legal Name:	Hydro Extrusion Portland, Inc.
Region:	Not reported
Pri SIC:	3499
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12Z
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported

SAPA PROFILES INC (Continued) **S105745852**

UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	103836
Legal Name:	Hydro Extrusion Portland, Inc.
Region:	NWR
Pri SIC:	3499
Facility Type:	FABRICATED METAL PRODUCTS
Latitude:	45.5754
Longitude:	-122.6057
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR110396
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	10/19/2018
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	952939
Class:	MINOR
Start Date:	09/10/2008
Region Decode:	North West Region

E38 **KYSOR PANEL SYSTEMS** **OR UST** **1000393068**
West **7320 NE 55TH AVE** **RCRA NonGen / NLR** **ORD009054115**
1/8-1/4 **PORTLAND, OR 97218**
0.159 mi.
837 ft. **Site 3 of 3 in cluster E**

Relative:
Lower

Actual:
13 ft.

UST:

Facility ID:	7527
Facility Telephone:	(503)288-7311
Permittee Name:	LARRY JEWELL, MAINTENANCE SUPERVISOR
Number of Permitted Tanks:	Not reported
Active Tanks:	Not reported
Decommissioned Tanks:	2
Number of Tanks:	2

RCRA NonGen / NLR:

Date form received by agency:	01/17/2002
Facility name:	KYSOR PANEL SYSTEMS
Facility address:	7320 NE 55TH AVE PORTLAND, OR 97218
EPA ID:	ORD009054115

KYSOR PANEL SYSTEMS (Continued) **1000393068**

Mailing address: 3201 NE LOOP 820 SUITE 150
FORT WORTH, TX 76137
Contact: WARD HARKER
Contact address: 7320 NE 55TH AVE
PORTLAND, OR 97218
Contact country: US
Contact telephone: 503-288-7311
Contact email: Not reported
EPA Region: 10
Land type: Other land type
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: ENODIS CORPORATION
Owner/operator address: 2227 WELBILT BLVD
NEW PORT RICHEY, FL 34655
Owner/operator country: US
Owner/operator telephone: 727-375-7010
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Owner
Owner/Op start date: 01/17/2002
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/19/2001
Site name: KYSOR PANEL SYSTEMS
Classification: Not a generator, verified

Date form received by agency: 01/21/2000
Site name: KYSOR PANEL SYSTEMS
Classification: Not a generator, verified

Date form received by agency: 01/21/2000
Site name: KYSOR PANEL SYSTEMS
Classification: Not a generator, verified

KYSOR PANEL SYSTEMS (Continued) **1000393068**

Date form received by agency: 04/19/1999
Site name: KYSOR PANEL SYSTEMS
Classification: Not a generator, verified

Date form received by agency: 01/16/1998
Site name: KYSOR KALT INC
Classification: Not a generator, verified

Date form received by agency: 01/16/1998
Site name: KYSOR PANEL SYSTEMS
Classification: Not a generator, verified

Date form received by agency: 01/06/1997
Site name: KYSOR KALT INC
Classification: Not a generator, verified

Date form received by agency: 04/18/1996
Site name: KYSOR KALT INC
Classification: Not a generator, verified

Date form received by agency: 02/03/1995
Site name: KYSOR KALT INC
Classification: Not a generator, verified

Date form received by agency: 02/11/1993
Site name: KALT MANUFACTURING CO
Classification: Not a generator, verified

Date form received by agency: 04/01/1992
Site name: KALT MANUFACTURING CO
Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 04/13/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

F39 **INK COMPANY THE** **RCRA NonGen / NLR** **1000108405**
SSW **6705 NE 59TH PL** **FINDS** **ORD987174414**
1/8-1/4 **PORTLAND, OR 97218** **ECHO**
0.184 mi.
973 ft. **Site 1 of 4 in cluster F**

Relative:
Higher

Actual:
25 ft.

RCRA NonGen / NLR:
Date form received by agency: 03/02/1993
Facility name: INK COMPANY THE
Facility address: 6705 NE 59TH PL
PORTLAND, OR 97218
EPA ID: ORD987174414
Mailing address: 6705 NE 59TH
PORTLAND, OR 97218

INK COMPANY THE (Continued) **1000108405**

Contact: JON WOOLLEY
Contact address: Not reported
,,
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: THE INK COMPANY
Owner/operator address: 6705 NE 59TH
PORTLAND, OR 97218
Owner/operator country: US
Owner/operator telephone: 503-281-3727
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: THE INK COMPANY
Owner/operator address: 1115 SHORE ST
SACRAMENTO, CA 95691
Owner/operator country: US
Owner/operator telephone: 916-372-2452
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Owner
Owner/Op start date: 04/09/1990
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/31/1992

INK COMPANY THE (Continued) **1000108405**

Site name: INK COMPANY THE
Classification: Not a generator, verified

. Waste code: NA
. Waste name: NA

Date form received by agency: 04/01/1992
Site name: INK COMPANY THE
Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Violation Status: No violations found

FINDS:

Registry ID: 110004797275

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000108405
Registry ID: 110004797275
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110004797275

40
SW
1/8-1/4
0.188 mi.
990 ft.

TNT UNITED TRUCKLINE - N PDX TERMINAL **OR UST** **U004015219**
6829 NE 59TH PL **N/A**
PORTLAND, OR 97218

Relative:
Lower

Actual:
21 ft.

UST:
Facility ID: 7310
Facility Telephone: (503)288-0063
Permittee Name: JOHN CLEMENT, PROPERTY MANAGER
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 1
Number of Tanks: 1

F41
SSW
1/8-1/4
0.215 mi.
1135 ft.

NW TRANSPORT SERVICE INC
6823 NE 59TH PL
PORTLAND, OR 97218

Site 2 of 4 in cluster F

OR LUST **U000432992**
OR UST **N/A**

Relative:
Higher

Actual:
31 ft.

LUST:

Region:	North Western Region
Facility ID:	26-93-0088
Cleanup Received Date:	05/11/1993
Cleanup Start Date:	09/10/1993
Cleanup Complete Date:	**07/31/1996**
Decode for Region:	**North West Region**

UST:

Facility ID:	3439
Facility Telephone:	(503) 284-5521
Permittee Name:	EARNIE DAVIDSON, TERMINAL MANAGER
Number of Permitted Tanks:	Not reported
Active Tanks:	Not reported
Decommissioned Tanks:	1
Number of Tanks:	1

F42
SSW
1/8-1/4
0.227 mi.
1200 ft.

ETEC, LLC
6635 NE 59TH PL
PORTLAND, OR 97218

Site 3 of 4 in cluster F

RCRA-CESQG **1014959095**
ORQ000031100

Relative:
Higher

Actual:
34 ft.

RCRA-CESQG:

Date form received by agency:	12/31/2012
Facility name:	ETEC, LLC
Facility address:	6635 NE 59TH PL PORTLAND, OR 97218-2709
EPA ID:	ORQ000031100
Contact:	BRIAN TIMMINS
Contact address:	6635 NE 59TH PL PORTLAND, OR 97218
Contact country:	US
Contact telephone:	971-222-3680
Contact email:	BRIAN@ETECLLC.COM
EPA Region:	10
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

ETEC, LLC (Continued) **1014959095**

Owner/Operator Summary:
- Owner/operator name: ETEC, LLC
- Owner/operator address: 6635 NE 59TH PL
  PORTLAND, OR 97218
- Owner/operator country: US
- Owner/operator telephone: 971-222-3680
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Private
- Owner/Operator Type: Owner
- Owner/Op start date: 12/31/2012
- Owner/Op end date: Not reported

- Owner/operator name: ETEC, LLC
- Owner/operator address: 6635 NE 59TH PL
  PORTLAND, OR 97218
- Owner/operator country: US
- Owner/operator telephone: 971-222-3680
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Private
- Owner/Operator Type: Operator
- Owner/Op start date: 12/31/2012
- Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

. Waste code: NA
. Waste name: NA

Historical Generators:
- Date form received by agency: 04/20/2012
- Site name: ETEC, LLC
- Classification: Conditionally Exempt Small Quantity Generator

. Waste code: NA
. Waste name: NA

Violation Status: No violations found

F43 **CLARKE AMERICAN** **RCRA NonGen / NLR** **1000473633**
SSW **6623 NE 59TH PL** **FINDS** **ORD987184959**
1/8-1/4 **PORTLAND, OR 97218** **ECHO**
0.228 mi.
1204 ft. **Site 4 of 4 in cluster F**

Relative:
Higher

Actual:
34 ft.

RCRA NonGen / NLR:

Date form received by agency:	04/29/1998
Facility name:	CLARKE AMERICAN
Facility address:	6623 NE 59TH PL PORTLAND, OR 97218
EPA ID:	ORD987184959
Mailing address:	5869 S 194TH ST KENT, WA 98032
Contact:	KATHI SMITH
Contact address:	6623 NE 59TH PL PORTLAND, OR 97218
Contact country:	US
Contact telephone:	503-288-9048
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CLARKE AMERICAN
Owner/operator address:	6623 N.E. 59TH PL PORTLAND, OR 97218
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	04/29/1998
Owner/Op end date:	Not reported

Owner/operator name:	CLARKE AMERICAN
Owner/operator address:	6623 N.E. 59TH PL PORTLAND, OR 97218
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	04/29/1998
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No

CLARKE AMERICAN (Continued) **1000473633**

On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/12/1996
Site name: CLARKE AMERICAN
Classification: Not a generator, verified

Date form received by agency: 02/07/1995
Site name: CLARKE AMERICAN
Classification: Not a generator, verified

Date form received by agency: 10/07/1993
Site name: CLARKE AMERICAN
Classification: Not a generator, verified

Date form received by agency: 04/01/1992
Site name: CLARKE AMERICAN
Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Violation Status: No violations found

FINDS:

Registry ID: 110004798979

Environmental Interest/Information System
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Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000473633
Registry ID: 110004798979
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110004798979

G44 **VININGS INDUSTRIES INC** **RCRA NonGen / NLR** **1004771494**
West **7325 NE 55TH AVE** **FINDS** **ORQ000009498**
1/8-1/4 **PORTLAND, OR 97218** **ECHO**
0.234 mi.
1233 ft. **Site 1 of 4 in cluster G**

Relative:
Lower

Actual:
13 ft.

RCRA NonGen / NLR:

Date form received by agency:	03/14/2000
Facility name:	VININGS INDUSTRIES INC
Facility address:	7325 NE 55TH AVE PORTLAND, OR 97218
EPA ID:	ORQ000009498
Mailing address:	1150 S 35TH ST WASHOUGAL, WA 98671
Contact:	BRAD STEPHENS
Contact address:	1150 S 35TH ST WASHOUGAL, WA 98671
Contact country:	US
Contact telephone:	360-835-8725
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	NEW SOUTH CHEMICAL
Owner/operator address:	245 TOWNPARK DR STE 200 KENNESAW, GA 30144
Owner/operator country:	US
Owner/operator telephone:	770-436-1542
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	03/14/2000
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	03/13/2000
Site name:	VININGS INDUSTRIES INC

VININGS INDUSTRIES INC (Continued) **1004771494**

Classification: Not a generator, verified

Date form received by agency: 03/01/2000
Site name: VININGS INDUSTRIES INC
Classification: Large Quantity Generator

Date form received by agency: 03/19/1999
Site name: VININGS INDUSTRIES INC
Classification: Not a generator, verified

Date form received by agency: 07/14/1998
Site name: VININGS INDUSTRIES INC
Classification: Not a generator, verified

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D008
. Waste name: LEAD

. Waste code: D011
. Waste name: SILVER

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: NONE
. Waste name: None

. Waste code: U007
. Waste name: ACRYLAMIDE

. Waste code: U041

VININGS INDUSTRIES INC (Continued) **1004771494**

. Waste name: EPICHLOROHYDRIN

. Waste code: U188
. Waste name: PHENOL

Violation Status: No violations found

FINDS:

Registry ID: 110004815905

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Registry ID: 110070337131

Environmental Interest/Information System
OSHA ESTABLISHMENT

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1004771494
Registry ID: 110004815905
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110004815905

G45 **PORTLAND INTERNATIONAL AIRPORT** **OR UST** **U000433000**
West **5555 NE CORNFOOT RD** **N/A**
1/8-1/4 **PORTLAND, OR 97218**
0.237 mi.
1249 ft. **Site 2 of 4 in cluster G**

Relative:
Lower

Actual:
19 ft.

UST:
Facility ID: 9423
Facility Telephone: (503) 231-5000
Permittee Name: Not reported
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 1
Number of Tanks: 1

G46
West
1/8-1/4
0.243 mi.
1282 ft.

Relative:
Lower

Actual:
13 ft.

SAPA PROFILES INC
5325 NE SKYPORT WAY
PORTLAND, OR 97218

Site 3 of 4 in cluster G

OR AST
OR SPILLS
OR HAZMAT
OR AIRS
OR HSIS
OR NPDES

S108662508
N/A

AST:

Facility Id:	019564
Hazardous Substance:	TOLUENE
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported
Storage 1:	Above ground tank
County:	MULTNOMAH
Owner-Operator Name:	PAT
Direct Site Phone:	5038023000
Report Class:	Annual
Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No
Is Biological Hazard:	No
Is Radioactive Material:	No
Is Explosive:	No
Status:	Not reported

Facility Id:	019564
Hazardous Substance:	XYLENE
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported
Storage 1:	Above ground tank
County:	MULTNOMAH
Owner-Operator Name:	PAT
Direct Site Phone:	5038023000
Report Class:	Annual
Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No
Is Biological Hazard:	No
Is Radioactive Material:	No
Is Explosive:	No
Status:	Not reported

OR SPILLS:

Facility ID:	2016-2254
Incident Status:	Closed
Material:	Not reported
Quantity:	Not reported
Unit of Measure:	Not reported
Release Date:	10/15/2016
Description:	Caller reported that approximately 175 gallons of recycled toluene was spilled to floor. The material went into a catch basin, that leads to the Columbia River. They will be contacting River City Environment. The catch basin has been covered with absorbent pads and it is anticipated that they will power wash the flooring and vac the catch basin. 'CALLER IS REPORTING THAT A FORKLIFT OPERATOR WAS MOVING A 250 GALLON POLY STORAGE TOTE, DURING THAT TIME THE CONTENTS OF THE TOTE SPILLED RESULTING IN THE RELEASE OF APPROXIMATELY 175 GALLONS OF

SAPA PROFILES INC (Continued) **S108662508**

RECYCLED TOLULENE (SOLVENT) ONTO THE FACILITIES FLOOR. THE MAJORITY OF THE SPILLED MATERIAL WENT INTO A DRAIN THAT LEADS INTO THE COLUMBIA SLOUGH.'
Lat/Long: 54.576266 / -122.60825
Source: Not reported
Media: Not reported
Responsible Company: Sapa Extrusions
Responsible Address: PO Box 11263
Responsible City,St,Zip: Portland, OR 972111

Facility ID: 2000-2808
Incident Status: Archive
Material: Products, manufacturing intermediates, etc.
Quantity: 200
Unit of Measure: Gallons
Release Date: 11/27/2000
Description: Toluene tote being unloaded - 200 gal. recovered from drain line - unknown how much reached slough
Lat/Long: 45.5755 / -122.6082
Source: Container
Media: Not reported
Responsible Company: Sapa Anodizing
Responsible Address: 7933 NE 21st Ave
Responsible City,St,Zip: Portland, OR 97211-1909

Facility ID: 2003-2747
Incident Status: Archive
Material: Not reported
Quantity: Not reported
Unit of Measure: Not reported
Release Date: 12/10/2003
Description: CALLER ADVISES THAT A PAINT BOOTH FOR ALUMINUM PRODUCTS CAUGHT FIRE AT SAPA, LOCATED AT PDX. THEY HAVE BLOCKED THE DRAINS TO THE SLOUGH AND BELIEVE THERE HAS BEEN NO EXPOSURE.
Lat/Long: 45.5755 / -122.6082
Source: Business
Media: Suspected, unknown, or no discharge
Responsible Company: Sapa Anodizing
Responsible Address: 5325 NE Skyport Way
Responsible City,St,Zip: Portland, OR 97218-1243

Facility ID: 2003-2747
Incident Status: Archive
Material: Not reported
Quantity: Not reported
Unit of Measure: Not reported
Release Date: 12/10/2003
Description: CALLER ADVISES THAT A PAINT BOOTH FOR ALUMINUM PRODUCTS CAUGHT FIRE AT SAPA, LOCATED AT PDX. THEY HAVE BLOCKED THE DRAINS TO THE SLOUGH AND BELIEVE THERE HAS BEEN NO EXPOSURE.
Lat/Long: 45.5755 / -122.6082
Source: Business
Media: On pavement/asphalt - not direct on soil
Responsible Company: Sapa Anodizing
Responsible Address: 5325 NE Skyport Way
Responsible City,St,Zip: Portland, OR 97218-1243

SAPA PROFILES INC (Continued) **S108662508**

Facility ID: 2003-2747
Incident Status: Archive
Material: Not reported
Quantity: 1
Unit of Measure: Gallons
Release Date: 12/10/2003
Description: CALLER ADVISES THAT A PAINT BOOTH FOR ALUMINUM PRODUCTS CAUGHT FIRE AT SAPA, LOCATED AT PDX. THEY HAVE BLOCKED THE DRAINS TO THE SLOUGH AND BELIEVE THERE HAS BEEN NO EXPOSURE.
Lat/Long: 45.5755 / -122.6082
Source: Business
Media: Suspected, unknown, or no discharge
Responsible Company: Sapa Anodizing
Responsible Address: 5325 NE Skyport Way
Responsible City,St,Zip: Portland, OR 97218-1243

Facility ID: 2003-2747
Incident Status: Archive
Material: Not reported
Quantity: 1
Unit of Measure: Gallons
Release Date: 12/10/2003
Description: CALLER ADVISES THAT A PAINT BOOTH FOR ALUMINUM PRODUCTS CAUGHT FIRE AT SAPA, LOCATED AT PDX. THEY HAVE BLOCKED THE DRAINS TO THE SLOUGH AND BELIEVE THERE HAS BEEN NO EXPOSURE.
Lat/Long: 45.5755 / -122.6082
Source: Business
Media: On pavement/asphalt - not direct on soil
Responsible Company: Sapa Anodizing
Responsible Address: 5325 NE Skyport Way
Responsible City,St,Zip: Portland, OR 97218-1243

HAZMAT:

Responsble Party:	BOB ORKEN
RP Company:	ANODYZING INC.
RP Address:	5225 NE SKYPORT WAY
RP City,St,Zip:	PORTLAND, OR 97218
Facility ID:	940119
OERS Number:	Not reported
Dept Rsp:	HAZMAT TEAM PORTLAND - 06
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported

SAPA PROFILES INC (Continued) **S108662508**

Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	HAZMAT TEAM PORTLAND - 06
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	0008233850
Osfm Incident Report Number:	940119
Dept. Responding:	HAZMAT TEAM PORTLAND - 06
Person Making Report:	JOHN W. KLEIN
Title:	CAPT
Agency:	HAZMAT TEAM PORTLAND - 06
Phone:	0008233850
Date Of Incident:	03/14/1994
Call Time:	10:54:00 AM
In Route:	12:00:00 AM
Arrival:	11:45:00 AM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	12:31:00 PM
Dist Of Incident:	HAZMAT TEAM PORTLAND - 06
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	HM06
Agency Report Number:	Not reported
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Private Land
Area Type:	Industrial
Responsible Party(Ies):	BOB ORKEN
Company:	ANODYZING INC.
Respcontact:	Not reported
Address:	5225 NE SKYPORT WAY
Resp City:	PORTLAND
Resp State:	OR
Resp ZipCode:	97218
Phone:	0002850404
Resp Phone2:	Not reported
Weather:	0
Temperature:	0

SAPA PROFILES INC (Continued) **S108662508**

Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	Not reported
Cause:	Improper Storage
Vehicle And Cargo:	0
Fixed Property:	0
Total Loss:	$0.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	6847
Chemical Id:	35430
Incident Id:	940119
Chemical Name:	UNKNOWN CHEMICAL
UNNA:	Not reported
Amount At Risk:	0
Amount Released:	0
Amount Measured:	0
Biological:	False
Radiological:	False

Chemical Id:	35430
Chemical Name:	UNKNOWN CHEMICAL
Hazardous Ingredient:	UNKNOWN CHEMICAL
Hazardous Class 1:	9.0
Hazardous Class 2:	Not reported
Hazardous Rank:	2
Case Number:	Not reported
UNNA Number:	Not reported
EPA Pest Reg:	Not reported
EHA Chem:	Not reported
PSM Chem:	Not reported
CAA 112R Chem:	Not reported

Method:

Method Used Id:	5372
Incident Id:	940119
Identity Method:	5

Released:

Release Behavior Id:	2440
Incident Id:	940119
Behavior:	3

Narrative:

SAPA PROFILES INC (Continued) **S108662508**

Narrative Id: 4579
Incident Id: 940119
Incident Narrative: RESPONDED ON A 55 GALLON DRUM FILL OF FINE ALUMINUM DUST. ALUMINUM WAS REACTING WITH MOISTURE AND GENERATING MODERATE HEAT. OFF LOADED PRODUCT OR DRY GROUND WHICH THE COOLED AND HAZARD WAS ABATED. FULL TURNOUTS UTILIZED.
Incident Date: 3/14/1994

Responsble Party:	JEFF BAYLOUS, FACILITY MGR
RP Company:	SAPA ANODIZING INC
RP Address:	5325 NE SKYPORT WAY
RP City,St,Zip:	PORTLAND, OR 97218
Facility ID:	000434
OERS Number:	Not reported
Dept Rsp:	PORTLAND BUREAU OF F&R&EMS
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	PORTLAND BUREAU OF F&R&EMS
Date Added:	01/16/2001
Unit:	Not reported
Agency Phone:	5038233855
Osfm Incident Report Number:	000434
Dept. Responding:	PORTLAND BUREAU OF F&R&EMS

SAPA PROFILES INC (Continued) **S108662508**

Person Making Report:	BOB FERRINGTON
Title:	CAPT
Agency:	PORTLAND BUREAU OF F&R&EMS
Phone:	5038233855
Date Of Incident:	11/27/2000
Call Time:	11:17:00 AM
In Route:	11:17:00 AM
Arrival:	11:26:00 AM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	12:09:00 PM
Dist Of Incident:	PORTLAND BUREAU OF F&R&EMS
Were State Resources Used?:	False
Was Oers Notified?:	True
Oers Number:	Not reported
Team Number:	Not reported
Agency Report Number:	0054095
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Waterway
Area Type:	Commercial
Responsible Party(Ies):	JEFF BAYLOUS, FACILITY MGR
Company:	SAPA ANODIZING INC
Respcontact:	Not reported
Address:	5325 NE SKYPORT WAY
Resp City:	PORTLAND
Resp State:	OR
Resp ZipCode:	97218
Phone:	5039721404
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	During Delivery/Shipment
Cause:	Unknown
Vehicle And Cargo:	2000
Fixed Property:	0
Total Loss:	$2,000.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	3301
Chemical Id:	31495
Incident Id:	000434
Chemical Name:	WASH SOLVENT

SAPA PROFILES INC (Continued) **S108662508**

UNNA: Not reported
Amount At Risk: 100
Amount Released: 100
Amount Measured: 2
Biological: False
Radiological: False

Chemical Id: 31495
Chemical Name: WASH SOLVENT
Hazardous Ingredient: MINERAL SPIRITS
Hazardous Class 1: 3.2
Hazardous Class 2: Not reported
Hazardous Rank: 2
Case Number: 8032324
UNNA Number: 1255
EPA Pest Reg: Not reported
EHA Chem: Not reported
PSM Chem: Not reported
CAA 112R Chem: Not reported

Method:
Method Used Id: 3500
Incident Id: 000434
Identity Method: 5

Released:
Release Behavior Id: 2924
Incident Id: 000434
Behavior: 4

Release Behavior Id: 5397
Incident Id: 000434
Behavior: 5

Release Behavior Id: 6464
Incident Id: 000434
Behavior: 10

Narrative:
Narrative Id: 718
Incident Id: 000434
Incident Narrative: E-14 AND E-890 RESPONDED TO A REPORTED TOLUENE SPILL. FOUND EMPLOYEES CLEANING UP A SPILL OF APPROX. 100 GALS. OF RECLAIMED WASH SOLVENT IN FACILITY PARKING LOT. E14 LEARNED THE SPILL HAD OCCURRED APPROX 1 1/2 HOURS PRIOR TO OUR RESPONSE. RESPONSIBLE PARTIES, JEFF BAYLOUS (MGR) AND SAM GRESS (SUPERVISOR) STATED APPROX 100 GALS OF PRODUCT WENT INTO THE PARKING LOT STORM DRAIN AND DUMPED INTO THE COLUMBIA SLOUGH. VERY LITTLE EVIDENCE OF SPILL REMAINED IN SLOUGH. E14 SPOKE WITH LT COFFEY E41C VIA CELL PHONE. HE NOTIFIED OARS (INCIDENT #2000-2808). E890 NOTIFIED TERRY ELLIS, PORT OF PORTLAND ENVIRONMENTAL SERVICES. E14 SECURED PARKING LOT AREA WITH YELLOW HAZARD TAPE. ADVISED RP NOT TO REMOVE DEBRIS PILE OF CONTAMINATED ABSORBANT UNTIL CONTACTED BY OARS REPRESENTATIVE.
Incident Date: 11/27/2000

SAPA PROFILES INC (Continued) **S108662508**

Responsble Party:	MICHAEL W DAVIS (MANAGER)
RP Company:	SAPA
RP Address:	5325 NE SKYPORT WAY
RP City,St,Zip:	PORTLAND, OR 97218
Facility ID:	030204
OERS Number:	Not reported
Dept Rsp:	HAZMAT TEAM PORTLAND - 06
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	HAZMAT TEAM PORTLAND - 06
Date Added:	02/10/2004
Unit:	Not reported
Agency Phone:	5038233856
Osfm Incident Report Number:	030204
Dept. Responding:	HAZMAT TEAM PORTLAND - 06
Person Making Report:	MIKE DOTSON
Title:	LT
Agency:	HAZMAT TEAM PORTLAND - 06
Phone:	5038233856
Date Of Incident:	12/10/2003
Call Time:	9:55:00 AM
In Route:	9:59:00 AM
Arrival:	10:12:00 AM
Depart Scene:	12:00:00 AM

SAPA PROFILES INC (Continued) **S108662508**

Back In Quarters:	12:00:00 AM
In Service:	2:30:00 PM
Dist Of Incident:	HAZMAT TEAM PORTLAND - 06
Were State Resources Used?:	False
Was Oers Notified?:	True
Oers Number:	Not reported
Team Number:	HM06
Agency Report Number:	0357569
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Private Structure
Area Type:	Commercial
Responsible Party(Ies):	MICHAEL W DAVIS (MANAGER)
Company:	SAPA
Respcontact:	Not reported
Address:	5325 NE SKYPORT WAY
Resp City:	PORTLAND
Resp State:	OR
Resp ZipCode:	97218
Phone:	5039721404
Resp Phone2:	8005470790
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	Normal Operation
Cause:	Fire/Explosion
Vehicle And Cargo:	0
Fixed Property:	200000
Total Loss:	$200,000.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	2703
Chemical Id:	21235
Incident Id:	030204
Chemical Name:	PAINT PRODUCTS
UNNA:	Not reported
Amount At Risk:	5
Amount Released:	5
Amount Measured:	2
Biological:	False
Radiological:	False

Chemical Id:	21235
Chemical Name:	PAINT PRODUCTS

SAPA PROFILES INC (Continued) **S108662508**

Hazardous Ingredient: PETROLEUM HYDROCARBON
Hazardous Class 1: 3.2
Hazardous Class 2: 6.3
Hazardous Rank: 2
Case Number: 123864
UNNA Number: 1263
EPA Pest Reg: Not reported
EHA Chem: Not reported
PSM Chem: Not reported
CAA 112R Chem: Not reported

Method:
Method Used Id: 353
Incident Id: 030204
Identity Method: 2

Method Used Id: 1030
Incident Id: 030204
Identity Method: 6

Method Used Id: 3800
Incident Id: 030204
Identity Method: 5

Released:
Release Behavior Id: 692
Incident Id: 030204
Behavior: 1

Release Behavior Id: 2285
Incident Id: 030204
Behavior: 2

Release Behavior Id: 2359
Incident Id: 030204
Behavior: 3

Release Behavior Id: 3190
Incident Id: 030204
Behavior: 4

Release Behavior Id: 5205
Incident Id: 030204
Behavior: 12

Release Behavior Id: 5229
Incident Id: 030204
Behavior: 11

Narrative:
Narrative Id: 1540
Incident Id: 030204
Incident Narrative: C-FIRE, HM06 RESPONDED BECAUSE OF POTENTIAL HAZARDOUS CHEMICALS AT FACILITY. FLASH FIRE IN THE EQUIPMENT/PAINT BLDG. APPROX 5 GAL OF PAINT PRODUCT INVOLVED IN FIRE. SEE MSDS FOR HAZARDOUS INGREDIENTS OF PAINT PRODUCT. HM06 DRAGER TUBES FOR BENZENE X4. FOUND SOME

SAPA PROFILES INC (Continued) **S108662508**

BENZENE IN SMOKE ATMOSPHERE IN BLDG. SAMPLED WATER RUN OFF AND NO CONTAMINATION (DILUTED) FOUND. DECON FOR ALL FIRE ENTRY PERSONNEL AND BAGGED ALL TURNOUT AND EQUIPMENT FOR DECON AND/OR DISPOSAL. MEDICAL EVALUATION OF ALL ENTRY PERSONNEL. NO INJURIES OR ACUTE EXPOSURES AT THIS TIME. FIRE EXTINGUISHED AND SMOKE DISSIPATED LOWERING DETECTABLE HAZARDOUS ATMOSPHERE IN BLDG. NOTE THAT STRONG CHEMICAL SMELL INSIDE PAINT/FIRE BLDG OFF GASING INSIDE. EMPLOYEES AND SAPA NOTIFIED OF OFF GASING. HM06 INSERVICE AT 1410 FROM SCENE.

Incident Date: 12/10/2003

OR AIRS:

Year:	Not reported
Emission:	Not reported
Permit Number:	26-3241-ST-01
Permit Type:	Standard ACDP
Expiration Date:	11/01/2023
Source ID:	Not reported
Issue Date:	11/21/2018
NAICS Code:	332812
Is Primary:	Not reported
SIC Code:	3479
Is Primary:	Not reported
Latitude:	45.5755
Longitude:	-122.6082
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

HSIS:

Facility ID:	019564
Department Or Division Of Company:	COATINGS DIVISION
Extremely Hazardous Substance:	Y
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	332812
NAICS Desc 1:	MTL COATING/ENGRAVING (EXC JWLRY/SLVRWR)&
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	JOHN VAN DEN NIEUWELAAR
Business Phone:	5038023000
Mailing Address:	PO BOX 11263
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97211
No. of Employees:	70
Day Phone:	5038023418
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE

SAPA PROFILES INC (Continued) **S108662508**

Sprinkler System:	Y
Emergency Contact:	SAM GRESS
Emergency Procedure:	THROUGHOUT FACILITY
Business Type:	ALUMINUM EXTRUSION COATER
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	HYDROCHLORIC ACID 30%
Physical Description:	LIQUID
Case Number:	7647010
Facility Id:	019564
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported

SAPA PROFILES INC (Continued) **S108662508**

Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	HYDROCHLORIC ACID
United Nations/north America 4 Digit Class Number:	1789
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	HYDROCHLORIC ACID 30%
United Nations/north America 4 Digit Class Number:	1789
Chemical Abstract Service Identifier Number:	7647010
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	N

Chemical Name:	PAINTS VARIOUS
Physical Description:	LIQUID
Case Number:	8032324
Facility Id:	019564
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	21
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported

SAPA PROFILES INC (Continued) **S108662508**

Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	MINERAL SPIRITS
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PAINTS VARIOUS
United Nations/north America 4 Digit Class Number:	1263
Chemical Abstract Service Identifier Number:	8032324
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	TOLUENE
Physical Description:	LIQUID
Case Number:	108883
Facility Id:	019564
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported

SAPA PROFILES INC (Continued) **S108662508**

Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	TOLUENE
United Nations/north America 4 Digit Class Number:	1294
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	TOLUENE
United Nations/north America 4 Digit Class Number:	1294
Chemical Abstract Service Identifier Number:	108883
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	Y
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	XYLENE
Physical Description:	LIQUID
Case Number:	1330207
Facility Id:	019564
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported

SAPA PROFILES INC (Continued) **S108662508**

Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	XYLENE (MIXED ISOMERS)
United Nations/north America 4 Digit Class Number:	1307
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	XYLENE
United Nations/north America 4 Digit Class Number:	1307
Chemical Abstract Service Identifier Number:	1330207
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	Y
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	13 302 A COMPONENT PART A
Physical Description:	LIQUID
Case Number:	9016879
Facility Id:	019564
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	O
Description:	TOTEBIN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported

SAPA PROFILES INC (Continued) **S108662508**

Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	POLYMERIC DIPHENYLMETHANE
United Nations/north America 4 Digit Class Number:	3082
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Reactive Material
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	4.4

Chemical:

Chemical Name:	13 302 A COMPONENT PART A
United Nations/north America 4 Digit Class Number:	3082
Chemical Abstract Service Identifier Number:	9016879
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Reactive Material
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	4.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	BULK BOND 1047
Physical Description:	LIQUID
Case Number:	7664393
Facility Id:	019564
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	10
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported

SAPA PROFILES INC (Continued) **S108662508**

Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	200-499
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	HYDROFLUORIC ACID
United Nations/north America 4 Digit Class Number:	1790
Hazard Rank:	2
EHS Ingredient:	HYDROFLUORIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Poisonous Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Combustible Material
Hazard Class 1 Of The Chemical:	6.1
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	4.5

Chemical:

Chemical Name:	BULK BOND 1047
United Nations/north America 4 Digit Class Number:	1790
Chemical Abstract Service Identifier Number:	7664393
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Poisonous Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Combustible Material
Hazard Class 1 Of The Chemical:	6.1
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	4.5
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	BULK BOND 1407
Physical Description:	LIQUID
Case Number:	7664382
Facility Id:	019564
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported

SAPA PROFILES INC (Continued) **S108662508**

Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	PHOSPHORIC ACID
United Nations/north America 4 Digit Class Number:	2922
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Poisonous Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.1
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	BULK BOND 1407
United Nations/north America 4 Digit Class Number:	2922
Chemical Abstract Service Identifier Number:	7664382
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Poisonous Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.1
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

NPDES:

WQ File Nbr:	104692
Legal Name:	Hydro Extrusion Portland, Inc.
Region:	Not reported
Pri SIC:	3354
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12H
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported

SAPA PROFILES INC (Continued) **S108662508**

UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	104692
Legal Name:	Hydro Extrusion Portland, Inc.
Region:	NWR
Pri SIC:	3354
Facility Type:	ALUMINUM EXTRUDED PRODUCTS
Latitude:	45.5755
Longitude:	-122.6082
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR200137
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	10/19/2018
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	952940
Class:	MINOR
Start Date:	12/28/1999
Region Decode:	North West Region

G47
West
1/8-1/4
0.243 mi.
1282 ft.

SAPA INC - COATINGS DIVSION **RCRA-LQG** **1000189769**
5325 NE SKYPORT WAY **TRIS** **97218NDZNG5325N**
PORTLAND, OR 97218 **ECHO**
OR MANIFEST

Site 4 of 4 in cluster G

Relative:
Lower

Actual:
13 ft.

RCRA-LQG:

Date form received by agency:	12/31/2017
Facility name:	SAPA PROFILES, INC COATINGS DIV
Facility address:	5325 NE SKYPORT WAY PORTLAND, OR 97218-1243
EPA ID:	ORD982656076
Mailing address:	PO BOX 11263 PORTLAND, OR 97211-0263
Contact:	STEPHEN GRUM
Contact address:	PO BOX 11263 PORTLAND, OR 97211-0263
Contact country:	US
Contact telephone:	503-802-3054
Contact email:	STEPHEN.GRUM@HYDRO.COM
EPA Region:	10
Land type:	Private

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	SAPA ANODIZING INC
Owner/operator address:	PO BOX 11263 PORTLAND, OR 97211
Owner/operator country:	US
Owner/operator telephone:	503-802-3000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	12/31/2017
Owner/Op end date:	Not reported

Owner/operator name:	SAPA PROFILES, INC
Owner/operator address:	PO BOX 11263 PORTLAND, OR 97211
Owner/operator country:	US
Owner/operator telephone:	503-802-3000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	12/31/2017
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Used oil transporter: No

. Waste code: NA
. Waste name: NA

Historical Generators:
Date form received by agency: 12/31/2016
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2015
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2015
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D005
. Waste name: BARIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F019
. Waste name: WASTEWATER TREATMENT SLUDGES FROM THE CHEMICAL CONVERSION COATING OF ALUMINUM EXCEPT FROM ZIRCONIUM PHOSPHATING IN ALUMINUM CAN WASHING WHEN SUCH PHOSPHATING IS AN EXCLUSIVE CONVERSION COATING PROCESS.

Date form received by agency: 12/31/2014
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2013
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2013
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F019
. Waste name: WASTEWATER TREATMENT SLUDGES FROM THE CHEMICAL CONVERSION COATING OF ALUMINUM EXCEPT FROM ZIRCONIUM PHOSPHATING IN ALUMINUM CAN WASHING WHEN SUCH PHOSPHATING IS AN EXCLUSIVE CONVERSION COATING PROCESS.

Date form received by agency: 12/31/2012
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2011
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2011
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D007
. Waste name: CHROMIUM

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F019
. Waste name: WASTEWATER TREATMENT SLUDGES FROM THE CHEMICAL CONVERSION COATING OF ALUMINUM EXCEPT FROM ZIRCONIUM PHOSPHATING IN ALUMINUM CAN WASHING WHEN SUCH PHOSPHATING IS AN EXCLUSIVE CONVERSION COATING PROCESS.

. Waste code: U134
. Waste name: HYDROFLUORIC ACID (C,T)

Date form received by agency: 12/31/2010
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2009
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/30/2009
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F019
. Waste name: WASTEWATER TREATMENT SLUDGES FROM THE CHEMICAL CONVERSION COATING OF ALUMINUM EXCEPT FROM ZIRCONIUM PHOSPHATING IN ALUMINUM CAN WASHING WHEN SUCH PHOSPHATING IS AN EXCLUSIVE CONVERSION COATING PROCESS.

. Waste code: U220
. Waste name: BENZENE, METHYL-

Date form received by agency: 12/31/2008
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 12/31/2007
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 12/31/2007
Site name: SAPA PROFILES, INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 12/31/2006
Site name: SAPA, INC COATINGS DIV

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Site name: SAPA, INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Site name: SAPA, INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 12/31/2004
Site name: SAPA, INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 01/01/2004
Site name: SAPA, INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 12/31/2003
Site name: SAPA, INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 03/03/2003
Site name: SAPA ANODIZING INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 04/01/2002
Site name: SAPA ANODIZING INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 03/01/2002
Site name: SAPA ANODIZING INC COATINGS DIV
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F019
. Waste name: WASTEWATER TREATMENT SLUDGES FROM THE CHEMICAL CONVERSION COATING OF ALUMINUM EXCEPT FROM ZIRCONIUM PHOSPHATING IN ALUMINUM CAN WASHING WHEN SUCH PHOSPHATING IS AN EXCLUSIVE CONVERSION COATING PROCESS.

Date form received by agency: 03/16/2001
Site name: ANODIZING INC COATING DIV
Classification: Not a generator, verified

Date form received by agency: 03/16/2001
Site name: SAPA ANODIZING INC COATINGS DIV
Classification: Large Quantity Generator

Date form received by agency: 03/01/2000
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 02/03/2000
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 02/24/1999
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 03/01/1998
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 02/13/1998
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 02/24/1997
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 03/01/1996
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 02/29/1996
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 02/27/1995
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 03/07/1994

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 03/01/1994
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 03/02/1993
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

Date form received by agency: 03/01/1992
Site name: ANODIZING, INC./ COATING DIVISION
Classification: Large Quantity Generator

Date form received by agency: 02/28/1992
Site name: ANODIZING INC COATING DIV
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

. Waste code: F019
. Waste name: WASTEWATER TREATMENT SLUDGES FROM THE CHEMICAL CONVERSION COATING OF ALUMINUM EXCEPT FROM ZIRCONIUM PHOSPHATING IN ALUMINUM CAN WASHING WHEN SUCH PHOSPHATING IS AN EXCLUSIVE CONVERSION COATING PROCESS.

Biennial Reports:

Last Biennial Reporting Year: 2017

Annual Waste Handled:

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.
Amount (Lbs): 286022.2

Waste code: D005
Waste name: BARIUM
Amount (Lbs): 3757.6

Waste code: D007
Waste name: CHROMIUM
Amount (Lbs): 129761.6

Waste code: D018
Waste name: BENZENE
Amount (Lbs): 292787.6

Waste code: D035
Waste name: METHYL ETHYL KETONE
Amount (Lbs): 292787.6

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 282264.6

Waste code: F005
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 397745.6

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Waste code: F019
Waste name: WASTEWATER TREATMENT SLUDGES FROM THE CHEMICAL CONVERSION COATING OF ALUMINUM EXCEPT FROM ZIRCONIUM PHOSPHATING IN ALUMINUM CAN WASHING WHEN SUCH PHOSPHATING IS AN EXCLUSIVE CONVERSION COATING PROCESS.
Amount (Lbs): 45820

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 05/05/2014
Date achieved compliance: 06/27/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/30/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 08/16/2011
Date achieved compliance: 12/30/2011
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/12/2011
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Universal Waste - Small Quantity Handlers
Date violation determined: 08/16/2011
Date achieved compliance: 12/30/2011
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/12/2011
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 09/12/2006
Date achieved compliance: 09/29/2006
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/06/2006

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 09/12/2006
Date achieved compliance: 11/03/2006
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/06/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Records/Reporting
Date violation determined: 09/12/2006
Date achieved compliance: 11/03/2006
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 10/06/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 08/28/2002
Date achieved compliance: 10/01/2002
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 09/10/2002
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - OAR 340-135-0070(1)
Area of violation: Generators - General
Date violation determined: 07/27/2000
Date achieved compliance: 09/08/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 08/08/2000
Enf. disposition status: Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 262.20
Area of violation: Generators - Manifest
Date violation determined: 07/27/2000
Date achieved compliance: 11/08/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 08/08/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 262.34(a)(4)
Area of violation: Generators - General
Date violation determined: 07/27/2000
Date achieved compliance: 09/08/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 08/08/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Container Use and Management
Date violation determined: 12/15/1994
Date achieved compliance: 01/26/1995
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/25/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Preparedness and Prevention
Date violation determined: 12/15/1994
Date achieved compliance: 01/26/1995
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/25/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 12/15/1994
Date achieved compliance: 01/26/1995
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/25/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 12/15/1994
Date achieved compliance: 01/26/1995
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/25/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 03/01/2016
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/05/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 06/27/2014
Evaluation lead agency: State

Evaluation date: 08/16/2011
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 12/30/2011
Evaluation lead agency: State

Evaluation date: 08/16/2011
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Universal Waste - Small Quantity Handlers
Date achieved compliance: 12/30/2011
Evaluation lead agency: State

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Evaluation date: 05/24/2010
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/12/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 09/29/2006
Evaluation lead agency: State

Evaluation date: 09/12/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Records/Reporting
Date achieved compliance: 11/03/2006
Evaluation lead agency: State

Evaluation date: 09/12/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 11/03/2006
Evaluation lead agency: State

Evaluation date: 08/28/2002
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 10/01/2002
Evaluation lead agency: State

Evaluation date: 07/27/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 11/08/2000
Evaluation lead agency: State

Evaluation date: 07/27/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 09/08/2000
Evaluation lead agency: State

Evaluation date: 12/15/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 01/26/1995
Evaluation lead agency: State

Evaluation date: 12/15/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Preparedness and Prevention
Date achieved compliance: 01/26/1995
Evaluation lead agency: State

Evaluation date: 12/15/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Contingency Plan and Emergency Procedures

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Date achieved compliance: 01/26/1995
Evaluation lead agency: State

Evaluation date: 12/15/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Container Use and Management
Date achieved compliance: 01/26/1995
Evaluation lead agency: State

TRIS:

Click this hyperlink while viewing on your computer to access
10 additional US_TRIS: record(s) in the EDR Site Report.

ECHO:
Envid: 1000189769
Registry ID: 110000487606
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110000487606

OR MANIFEST:
Manifest Year: Manifest Year - 2017
EPA Id: ORD982656076
Inactive Status: Not reported
Organization Name: Not reported
Contact Name: Stephen Grum
Contact Telephone Number: Not reported
Mailing Address: PO Box 11263
Mailing City/State/Zip: Portland, OR 97211-0263

Manifest:
Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 00996259FLE
Ship Date : 01/31/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1700.625

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009996209FLE
Ship Date : 01/06/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2513.52375

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009996260FLE
Ship Date : 01/18/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1755.045

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009996349FLE
Ship Date : 01/20/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1564.575

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010465916FLE
Ship Date : 01/27/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2169.9975

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010465949FLE
Ship Date : 02/09/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4489.65

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010465973FLE
Ship Date : 02/10/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2516.925

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010466020FLE
Ship Date : 02/17/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2248.22625

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010466054FLE
Ship Date : 03/03/2017

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1544.1675

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010466095FLE
Ship Date : 02/28/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2040.75

Click this hyperlink while viewing on your computer to access
3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010466096FLE
Ship Date : 03/03/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2448.9

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010499023FLE
Ship Date : 04/04/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2380.875

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010499093FLE
Ship Date : 04/11/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2329.85625

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010499138FLE
Ship Date : 04/18/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 187.06875

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010499139FLE
Ship Date : 04/18/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 2187.00375

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010499183FLE
Ship Date : 04/25/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2176.8

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010499229FLE
Ship Date : 05/02/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1772.05125

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010499365FLE
Ship Date : 05/05/2017
TSD : UTD981552177
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 561.20625

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Manifest : 010499366FLE
Ship Date : 05/09/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1496.55

Year : 2017
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 010499503FLE
Ship Date : 03/07/2017
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001
Waste Description: Waste Flammable Liquids
Total Amt Of Waste Stream Generated in Reporting Yr 1: 150069.9525
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2190.405

Manifest:
Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008920636FLE
Ship Date : 01/06/2016
TSD : IDD073114654
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D002
Waste Description: Sludge from wastewater treatment clean out
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8870.46
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2004.47

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009468961FLE
Ship Date : 05/06/2016
TSD : IDD073114654

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D002
Waste Description: Sludge from wastewater treatment clean out
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8870.46
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6865.99

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008920636FLE
Ship Date : 01/06/2016
TSD : IDD073114654
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Sludge from wastewater treatment clean out
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8870.46
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2004.47

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009468961FLE
Ship Date : 05/06/2016
TSD : IDD073114654
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Sludge from wastewater treatment clean out
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8870.46
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6865.99

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008920636FLE
Ship Date : 01/06/2016
TSD : IDD073114654
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Waste Description: Sludge from wastewater treatment clean out
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8870.46
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2004.47

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009468961FLE
Ship Date : 05/06/2016
TSD : IDD073114654
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Sludge from wastewater treatment clean out
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8870.46
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6865.99

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008920636FLE
Ship Date : 01/06/2016
TSD : IDD073114654
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007
Waste Description: Sludge from wastewater treatment clean out
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8870.46
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2004.47

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009468961FLE
Ship Date : 05/06/2016
TSD : IDD073114654
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007
Waste Description: Sludge from wastewater treatment clean out
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8870.46
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6865.99

Year : 2016
RCRA Id : ORD982656076

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Inactive : Not reported
Status: Large quantity generator
Manifest : 008920636FLE
Ship Date : 01/06/2016
TSD : IDD073114654
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D008
Waste Description: Sludge from wastewater treatment clean out
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8870.46
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2004.47

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009468961FLE
Ship Date : 05/06/2016
TSD : IDD073114654
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D008
Waste Description: Sludge from wastewater treatment clean out
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8870.46
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6865.99

Click this hyperlink while viewing on your computer to access
3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 016562804JJK
Ship Date : 12/27/2016
TSD : IDD073114654
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D002
Waste Description: Chromic Acid Solution
Total Amt Of Waste Stream Generated in Reporting Yr 1: 301.5775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 301.5775

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 016562804JJK

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Ship Date : 12/27/2016
TSD : IDD073114654
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007
Waste Description: Chromic Acid Solution
Total Amt Of Waste Stream Generated in Reporting Yr 1: 301.5775
Total Amt Of Waste Stream Generated in Reporting Yr 2: 301.5775

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 011881512JJK
Ship Date : 09/16/2016
TSD : ORD089452353
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: STAB06 METAL HYDROXIDE FILTER CAKE F019 (Chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 45526.865
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5668.75

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 011881622JJK
Ship Date : 08/01/2016
TSD : ORD089452353
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: STAB06 METAL HYDROXIDE FILTER CAKE F019 (Chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 45526.865
Total Amt Of Waste Stream Generated in Reporting Yr 2: 8135.79

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 011881623JJK
Ship Date : 05/13/2016
TSD : ORD089452353
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Off Mng : H132
EPA Waste Codes: F019
Waste Description: STAB06 METAL HYDROXIDE FILTER CAKE F019 (Chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 45526.865
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6312.72

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 011881624JJK
Ship Date : 03/21/2016
TSD : ORD089452353
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: STAB06 METAL HYDROXIDE FILTER CAKE F019 (Chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 45526.865
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4761.75

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 011881625JJK
Ship Date : 01/27/2016
TSD : ORD089452353
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: STAB06 METAL HYDROXIDE FILTER CAKE F019 (Chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 45526.865
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6643.775

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 014917590JJK
Ship Date : 11/28/2016
TSD : ORD089452353
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: STAB06 METAL HYDROXIDE FILTER CAKE F019 (Chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 45526.865
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3972.66

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 014917591JJK
Ship Date : 12/19/2016
TSD : ORD089452353
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: STAB06 METAL HYDROXIDE FILTER CAKE F019 (Chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 45526.865
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2884.26

Year : 2016
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 014917595JJK
Ship Date : 11/02/2016
TSD : ORD089452353
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: STAB06 METAL HYDROXIDE FILTER CAKE F019 (Chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 45526.865
Total Amt Of Waste Stream Generated in Reporting Yr 2: 7147.16

Manifest:
Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407463FLE
Ship Date : 08/12/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2261.83125

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Status: Large quantity generator
Manifest : 008407505FLE
Ship Date : 08/18/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 704.05875

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407505FLE
Ship Date : 08/18/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2261.83125

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407543FLE
Ship Date : 08/25/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2510.1225

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407645FLE
Ship Date : 09/01/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 170.0625

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407645FLE
Ship Date : 09/01/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2346.8625

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407667FLE
Ship Date : 09/08/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2295.84375

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407714FLE
Ship Date : 09/15/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 2516.925

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407755FLE
Ship Date : 09/22/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2346.8625

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407815FLE
Ship Date : 09/29/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3367.2375

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3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407857FLE
Ship Date : 10/06/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1122.4125

Year : 2015

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 008407857FLE
Ship Date : 10/06/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1598.5875

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009102410FLE
Ship Date : 12/22/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 850.3125

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009102441FLE
Ship Date : 12/29/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2363.86875

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009102958FLE
Ship Date : 10/13/2015
TSD : WAD981769110

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 40.815

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009102958FLE
Ship Date : 10/13/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2482.9125

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009102985FLE
Ship Date : 10/20/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 513.58875

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009102985FLE
Ship Date : 10/20/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2516.925

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009103027FLE
Ship Date : 10/27/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2482.9125

Year : 2015
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 009103108FLE
Ship Date : 11/03/2015
TSD : WAD981769110
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 122030.0475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3163.1625

Manifest:
Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 011870429JJK
Ship Date : 02/11/2014
TSD : ORD089452353
WS Num: 4
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: RQ, NA0377 Metal hydroxide filer cake, NOS 9III (chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 22875.447
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4389.8800000000001

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 011881274JJK
Ship Date : 05/07/2014
TSD : ORD089452353
WS Num: 4
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: RQ, NA0377 Metal hydroxide filer cake, NOS 9III (chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 22875.447
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6675.5200000000004

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 011881330JJK
Ship Date : 08/13/2014
TSD : ORD089452353
WS Num: 4
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: RQ, NA0377 Metal hydroxide filer cake, NOS 9III (chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 22875.447
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5496.4200000000001

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 011871284JJK
Ship Date : 11/12/2014
TSD : ORD089452353
WS Num: 4
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: F019
Waste Description: RQ, NA0377 Metal hydroxide filer cake, NOS 9III (chromium)
Total Amt Of Waste Stream Generated in Reporting Yr 1: 22875.447
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4190.3400000000001

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765678FLE
Ship Date : 06/17/2014

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5612.0625

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 007596092FLE
Ship Date : 07/02/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6465.7762499999999

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765773FLE
Ship Date : 07/08/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1870.6875

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765832FLE
Ship Date : 07/15/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2499.9187499999998

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765910FLE
Ship Date : 07/22/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2479.51125

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006764773fle
Ship Date : 08/13/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3401.25

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3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765940FLE
Ship Date : 07/29/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 3649.5412500000002

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006766008FLE
Ship Date : 08/05/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3129.1500000000001

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006764816FLE
Ship Date : 08/19/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2516.9250000000002

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006766075FLE
Ship Date : 08/26/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3333.2249999999999

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Manifest : 006766088FLE
Ship Date : 09/02/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1649.60625

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006764992FLE
Ship Date : 09/09/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2724.4012499999999

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006766100FLE
Ship Date : 09/16/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3350.2312499999998

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006765130FLE
Ship Date : 09/23/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3316.21875

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006766117FLE
Ship Date : 09/30/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2448.9000000000001

Year : 2014
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 006766142FLE
Ship Date : 10/07/2014
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 145910.22375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2499.9187499999998

Manifest:
Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224537
Ship Date : 12/31/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6078.0337499999996

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 05222323FLE
Ship Date : 08/30/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 7683.4237499999999

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005226790FLE
Ship Date : 11/26/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6952.1549999999997

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005226653FLE
Ship Date : 11/12/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6683.4562500000002

Year : 2013
RCRA Id : ORD982656076

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Inactive : Not reported
Status: Large quantity generator
Manifest : 005226511FLE
Ship Date : 10/29/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 7401.1199999999999

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005226390FLE
Ship Date : 10/15/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6407.9549999999999

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005225848FLE
Ship Date : 05/14/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6142.6575000000003

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005225737FLE
Ship Date : 04/30/2013
TSD : WAD981769110
WS Num: 1

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5639.2725

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005225604FLE
Ship Date : 04/16/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6761.6850000000004

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005225469FLE
Ship Date : 04/03/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5816.1374999999998

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3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005225265FLE
Ship Date : 10/01/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6390.9487499999996

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224987FLE
Ship Date : 09/04/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 7380.7124999999996

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005220513FLE
Ship Date : 05/28/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5050.8562499999998

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005218859FLE
Ship Date : 02/05/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5084.8687499999996

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005218996FLE
Ship Date : 02/19/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5101.875

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005225104FLE
Ship Date : 09/17/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 7064.3962499999998

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005219341FLE
Ship Date : 03/19/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4863.7875000000004

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005224417FLE
Ship Date : 12/10/2013

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4431.8287499999997

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005220675FLE
Ship Date : 06/11/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5421.5924999999997

Year : 2013
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005220800FLE
Ship Date : 06/26/2013
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1933, waste flammable liquids, n.o.s.(contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 159229.51874999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5278.7399999999998

Manifest:
Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004447468
Ship Date : 02/07/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005223971
Ship Date : 12/26/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005222815
Ship Date : 09/19/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005222641
Ship Date : 09/04/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 005222509
Ship Date : 08/22/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004449937
Ship Date : 06/12/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004449817
Ship Date : 05/29/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Manifest : 004449683
Ship Date : 05/15/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004449572
Ship Date : 08/07/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004449456
Ship Date : 07/24/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004449302
Ship Date : 07/10/2012
TSD : WAD981769110

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004447578
Ship Date : 02/21/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004390866
Ship Date : 04/03/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 003455598
Ship Date : 11/14/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 003455726
Ship Date : 11/27/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 003455935
Ship Date : 12/12/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004449141
Ship Date : 06/26/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Inactive : Not reported
Status: Large quantity generator
Manifest : 004390762
Ship Date : 03/20/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004447363
Ship Date : 01/24/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 004390963
Ship Date : 04/17/2012
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4446584

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Ship Date : 05/17/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5714.1000000000004

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4449088
Ship Date : 10/04/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 7392.0500000000002

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4448990
Ship Date : 09/20/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5487.3500000000004

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4448909
Ship Date : 09/06/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5578.0500000000002

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4448816
Ship Date : 08/23/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6394.3500000000004

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4448735
Ship Date : 08/09/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6621.1000000000004

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4448614
Ship Date : 07/26/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5215.25

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4448515
Ship Date : 07/12/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6575.75

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4448413
Ship Date : 06/28/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6666.4499999999998

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4448280
Ship Date : 06/14/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5668.75

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3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Status: Large quantity generator
Manifest : 4448191
Ship Date : 05/31/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4353.6000000000004

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4447124
Ship Date : 12/13/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 7618.8000000000002

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4391318
Ship Date : 11/01/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6802.5

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 1741408
Ship Date : 03/08/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4535

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 3447985
Ship Date : 01/11/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4535

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 3456110
Ship Date : 01/25/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4308.25

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 3456209
Ship Date : 02/08/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 4444.3000000000002

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4447192
Ship Date : 12/27/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6235.625

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4391203
Ship Date : 10/18/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 6643.7749999999996

Year : 2011
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 4446463
Ship Date : 05/03/2011
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: RQ, UN1993, waste flammable liquids, N.o.s (contains toluene and xylene), 3
Total Amt Of Waste Stream Generated in Reporting Yr 1: 146906.79000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5442

Manifest:
Year : 2010

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001415375
Ship Date : 06/08/2010
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1580.4475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 282.077

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002266824
Ship Date : 02/16/2010
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1580.4475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 249.42500000000001

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002267056
Ship Date : 03/16/2010
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1580.4475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 253.053

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002267274
Ship Date : 04/13/2010
TSD : WAD981769110

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1580.4475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 266.65800000000002

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002570001
Ship Date : 05/10/2010
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1580.4475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 49.884999999999998

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 003448243
Ship Date : 08/03/2010
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1580.4475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 240.35499999999999

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 003454903
Ship Date : 10/26/2010
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1580.4475
Total Amt Of Waste Stream Generated in Reporting Yr 2: 238.99449999999999

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002570001
Ship Date : 05/10/2010
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5079.1999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 748.27499999999998

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 003484559
Ship Date : 09/14/2010
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5079.1999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 249.42500000000001

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 003454903
Ship Date : 10/26/2010
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5079.1999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 249.42500000000001

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

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3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002570415
Ship Date : 06/23/2010
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5079.1999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 498.85000000000002

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002267056
Ship Date : 03/16/2010
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5079.1999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 498.85000000000002

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002266824
Ship Date : 02/16/2010
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5079.1999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 748.27499999999998

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Status: Large quantity generator
Manifest : 002266645
Ship Date : 01/19/2010
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5079.1999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 997.70000000000005

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001415242
Ship Date : 05/25/2010
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5079.1999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 249.42500000000001

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002267180
Ship Date : 03/30/2010
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5079.1999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 748.27499999999998

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 003447892
Ship Date : 12/28/2010
TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 5079.1999999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 498.85000000000002

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 003454775
Ship Date : 10/12/2010
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106010.16
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4353.6000000000004

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002571334
Ship Date : 12/14/2010
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106010.16
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4353.6000000000004

Year : 2010
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 003447627
Ship Date : 11/29/2010
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106010.16

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 4353.6000000000004

Manifest:
Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002069091
Ship Date : 11/16/2009
TSD : ORD089452353
WS Num: 2
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: WASTE PAINT FILTER WASTE AND RAGS
Total Amt Of Waste Stream Generated in Reporting Yr 1: 36785.199000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3673.3499999999999

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002569117
Ship Date : 11/10/2009
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 85004.039999999994
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2612.1599999999999

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001415119
Ship Date : 05/12/2009
TSD : WAD981769110
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 10725.275
Total Amt Of Waste Stream Generated in Reporting Yr 2: 249.42500000000001

Year : 2009

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002571715
Ship Date : 07/21/2009
TSD : WAD981769110
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 10725.275
Total Amt Of Waste Stream Generated in Reporting Yr 2: 997.70000000000005

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002569216
Ship Date : 11/24/2009
TSD : WAD981769110
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 10725.275
Total Amt Of Waste Stream Generated in Reporting Yr 2: 498.85000000000002

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002568566
Ship Date : 02/03/2009
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4027.0799999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 226.75

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002569463
Ship Date : 12/22/2009
TSD : WAD981769110

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 10725.275
Total Amt Of Waste Stream Generated in Reporting Yr 2: 748.27499999999998

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002266239
Ship Date : 01/06/2009
TSD : WAD981769110
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 10725.275
Total Amt Of Waste Stream Generated in Reporting Yr 2: 997.70000000000005

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002069085
Ship Date : 03/04/2009
TSD : ORD089452353
WS Num: 2
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: WASTE PAINT FILTER WASTE AND RAGS
Total Amt Of Waste Stream Generated in Reporting Yr 1: 36785.199000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2974.5065

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002571834
Ship Date : 08/04/2009
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4027.0799999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 226.75

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3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002571715
Ship Date : 07/21/2009
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4027.0799999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 226.75

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002266438
Ship Date : 01/20/2009
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4027.0799999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 226.75

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002569860
Ship Date : 10/13/2009
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 85004.039999999994
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2612.1599999999999

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001415004
Ship Date : 04/14/2009
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 85004.039999999994
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2612.1599999999999

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002655698
Ship Date : 08/25/2009
TSD : ORD089452353
WS Num: 1
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H131
EPA Waste Codes: F019
Waste Description: METAL HYDROXIDE FILTER CAKE, WASTE WATER TREATMENT SLUDGE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 19323.634999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3900.0999999999999

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002069097
Ship Date : 06/02/2009
TSD : ORD089452353
WS Num: 1
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H131
EPA Waste Codes: F019
Waste Description: METAL HYDROXIDE FILTER CAKE, WASTE WATER TREATMENT SLUDGE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 19323.634999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4217.5500000000002

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001415375
Ship Date : 06/09/2009

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASET SOILID NOS, Paint booth overs spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4027.0799999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 226.75

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002570705
Ship Date : 03/31/2009
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 85004.039999999994
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2539.5999999999999

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002568875
Ship Date : 03/03/2009
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 85004.039999999994
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3482.8800000000001

Year : 2009
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002571834
Ship Date : 08/04/2009
TSD : WAD981769110
WS Num: 5
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: LIQUID PAINT WASTE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 10725.275
Total Amt Of Waste Stream Generated in Reporting Yr 2: 249.42500000000001

Manifest:
Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002266056
Ship Date : 12/12/2008
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106699.48
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3337.7600000000002

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002261601
Ship Date : 09/30/2008
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106699.48
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3337.7600000000002

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001739791
Ship Date : 03/18/2008
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASTE SOLID NOS, Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6308.1850000000004

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 226.75

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002261775
Ship Date : 10/14/2008
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASTE SOLID NOS, Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6308.1850000000004
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000927575
Ship Date : 09/03/2008
TSD : ORD089452353
WS Num: 3
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: WASTE PAINT FILTER WASTE AND RAGS
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43678.398999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3107.3820000000001

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000927576
Ship Date : 10/01/2008
TSD : ORD089452353
WS Num: 3
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: WASTE PAINT FILTER WASTE AND RAGS
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43678.398999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3355.9000000000001

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Manifest : 000927571
Ship Date : 05/07/2008
TSD : ORD089452353
WS Num: 3
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: WASTE PAINT FILTER WASTE AND RAGS
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43678.398999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4425.2529999999997

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001743754
Ship Date : 08/05/2008
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASTE SOLID NOS, Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6308.1850000000004
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000927580
Ship Date : 03/05/2008
TSD : ORD089452353
WS Num: 2
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H131
EPA Waste Codes: F019
Waste Description: METAL HYDROXIDE FILTER CAKE, WASTE WATER TREATMENT SLUDGE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 24762.914000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 7550.7749999999996

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002261775
Ship Date : 10/14/2008
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106699.48
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4172.1999999999998

Click this hyperlink while viewing on your computer to access
3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000927577
Ship Date : 11/04/2008
TSD : ORD089452353
WS Num: 3
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: WASTE PAINT FILTER WASTE AND RAGS
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43678.398999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5237.9250000000002

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002261896
Ship Date : 10/28/2008
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASTE SOLID NOS, Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6308.1850000000004
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 002261601
Ship Date : 09/30/2008
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Waste Description: HAZARDOUS WASTE SOLID NOS, Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6308.1850000000004
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001419976
Ship Date : 11/12/2008
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106699.48
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4172.1999999999998

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001740634
Ship Date : 01/22/2008
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106699.48
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3337.7600000000002

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001415978
Ship Date : 01/10/2008
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106699.48
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3337.7600000000002

Year : 2008
RCRA Id : ORD982656076

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Inactive : Not reported
Status: Large quantity generator
Manifest : 001745055
Ship Date : 04/08/2008
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106699.48
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1668.8800000000001

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001743615
Ship Date : 07/22/2008
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASTE SOLID NOS, Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6308.1850000000004
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001745402
Ship Date : 05/13/2008
TSD : WAD981769110
WS Num: 4
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: HAZARDOUS WASTE SOLID NOS, Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 6308.1850000000004
Total Amt Of Waste Stream Generated in Reporting Yr 2: 680.25

Year : 2008
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001415734
Ship Date : 01/02/2008
TSD : WAD981769110
WS Num: 1

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: SPENT SOLVENT TOLULENE
Total Amt Of Waste Stream Generated in Reporting Yr 1: 106699.48
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2503.3200000000002

Manifest:
Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000270208FLE
Ship Date : 03/27/2007
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: 172964.89999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3519.1599999999999

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000270927FLE
Ship Date : 11/27/2007
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: 172964.89999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2612.1599999999999

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001415684JJK
Ship Date : 12/26/2007
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: 172964.89999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2612.1599999999999

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000263339FLE
Ship Date : 06/12/2007
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7061
Total Amt Of Waste Stream Generated in Reporting Yr 2: 247.61000000000001

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000263690FLE
Ship Date : 08/14/2007
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: 172964.89999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3482.8800000000001

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000271086FLE
Ship Date : 12/11/2007
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7061
Total Amt Of Waste Stream Generated in Reporting Yr 2: 238.09

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001415684JJK
Ship Date : 12/26/2007
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7061
Total Amt Of Waste Stream Generated in Reporting Yr 2: 206.34

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 001337228JJK
Ship Date : 04/04/2007
TSD : ORD089452353
WS Num: 4
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: Paint filters and rags
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43717.849999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4036.1500000000001

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000269951FLE
Ship Date : 02/06/2007
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: 172964.89999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2964.0799999999999

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000271552FLE
Ship Date : 01/09/2007

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

TSD : WAD981769110
WS Num: 2
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: 11600.530000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 249.43000000000001

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3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000263598FLE
Ship Date : 07/31/2007
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: 172964.89999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3519.1599999999999

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000270012FLE
Ship Date : 02/20/2007
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: 172964.89999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3566.3200000000002

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000270521FLE
Ship Date : 10/09/2007
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7061
Total Amt Of Waste Stream Generated in Reporting Yr 2: 515.17999999999995

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000271532FLE
Ship Date : 01/02/2007
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: 172964.89999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1777.72

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000271532FLE
Ship Date : 01/02/2007
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7061
Total Amt Of Waste Stream Generated in Reporting Yr 2: 530.13999999999999

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000263716FLE
Ship Date : 08/21/2007
TSD : WAD981769110
WS Num: 1
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: 172964.89999999999

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 3519.1599999999999

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000270208FLE
Ship Date : 03/27/2007
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7061
Total Amt Of Waste Stream Generated in Reporting Yr 2: 461.66000000000003

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000927579FLE
Ship Date : 12/05/2007
TSD : ORD089452353
WS Num: 5
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H131
EPA Waste Codes: F019
Waste Description: Waste Water Treatment Sludge
Total Amt Of Waste Stream Generated in Reporting Yr 1: 24035.5
Total Amt Of Waste Stream Generated in Reporting Yr 2: 8525.7999999999993

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 000269988FLE
Ship Date : 02/13/2007
TSD : WAD981769110
WS Num: 3
Transporter: WAD058364647
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: 7061
Total Amt Of Waste Stream Generated in Reporting Yr 2: 523.34000000000003

Year : 2007
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Manifest : 000927566FLE
Ship Date : 12/05/2007
TSD : ORD089452353
WS Num: 4
Transporter: ORQ000019968
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: Paint filters and rags
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43717.849999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3832.0799999999999

Manifest:
Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 269134
Ship Date : 09/26/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1092
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 83877
Ship Date : 01/31/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1215
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 87277
Ship Date : 02/21/2006
TSD : WAD058364647

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1380
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 90704
Ship Date : 03/14/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 490
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 12529
Ship Date : 08/22/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1240
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 85163
Ship Date : 02/07/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1180
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 09031
Ship Date : 07/25/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 268
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 271370
Ship Date : 11/29/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 735
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 04364
Ship Date : 06/20/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1235
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Inactive : Not reported
Status: Large quantity generator
Manifest : 269245
Ship Date : 10/10/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1273
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Click this hyperlink while viewing on your computer to access
3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 88411
Ship Date : 02/28/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 500
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 03343
Ship Date : 06/13/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 990
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 91874

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Ship Date : 03/21/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1033
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 13390
Ship Date : 08/29/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1220
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 93901
Ship Date : 04/04/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 977
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 271471
Ship Date : 12/19/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 109
Rpt Unit : GAL

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 06951
Ship Date : 07/11/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1200
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Spent Solvent Tolulene
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 96231
Ship Date : 04/18/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1000
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Hazardous Waste solid NOS Paint booth over spray and scrapings
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 80128
Ship Date : 01/10/2006
TSD : WAD058364647
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 220
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Paint Waste
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Year : 2006
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 06016
Ship Date : 06/01/2006
TSD : ORQ000019968
WS Num: Not reported
Transporter: ORQ000019968
Ship Qty : 9700
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: Paint filters and rags
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 17790
Ship Date : 06/22/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1363
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 29116
Ship Date : 10/12/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1181
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Status: Large quantity generator
Manifest : 27929
Ship Date : 09/28/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 15203
Ship Date : 05/18/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1205
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 21017
Ship Date : 08/03/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1320
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 19940
Ship Date : 07/20/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Ship Qty : 1200
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 31610
Ship Date : 11/02/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1176
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 23616
Ship Date : 09/07/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1235
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 19430
Ship Date : 07/13/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 275
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 06175
Ship Date : 01/13/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1480
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Click this hyperlink while viewing on your computer to access
3748 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 13116
Ship Date : 04/20/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1350
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 06900
Ship Date : 01/21/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1100
Rpt Unit : GAL
Off Mng : H020
EPA Waste Codes: D001 D018 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 82304
Ship Date : 08/24/2004
TSD : ORD089452353
WS Num: Not reported
Transporter: ORQ000019968
Ship Qty : 7940
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 61604
Ship Date : 06/16/2004
TSD : ORD089452353
WS Num: Not reported
Transporter: ORQ000019968
Ship Qty : 9640
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 07294
Ship Date : 07/29/2004
TSD : ORD089452353
WS Num: Not reported
Transporter: ORQ000019968
Ship Qty : 17460
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: F019
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 30900
Ship Date : 10/26/2004
TSD : WAD981769110

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 581
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 09030
Ship Date : 02/24/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 500
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 10284
Ship Date : 10/28/2004
TSD : ORD089452353
WS Num: Not reported
Transporter: ORQ000019968
Ship Qty : 8534
Rpt Unit : LB
Off Mng : H132
EPA Waste Codes: D007 F005 U220
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 15758
Ship Date : 05/25/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1000
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035

SAPA INC - COATINGS DIVSION (Continued) **1000189769**

Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD982656076
Inactive : Not reported
Status: Large quantity generator
Manifest : 12665
Ship Date : 04/13/2004
TSD : WAD981769110
WS Num: Not reported
Transporter: WAD058364647
Ship Qty : 1000
Rpt Unit : LB
Off Mng : H061
EPA Waste Codes: D007 D018 D035
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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H48 **PORTLAND WILLAMETTE** **OR ECSI** **S108662017**
SSW **6800 NE 59TH PL** **OR HAZMAT** **N/A**
1/4-1/2 **PORTLAND, OR 97218** **OR HSIS**
0.250 mi. **OR NPDES**
1321 ft. **Site 1 of 2 in cluster H** **OR UIC**

Relative:
Higher

Actual:
43 ft.

ECSI:
State ID Number: 976
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 832
Investigation: No Further Action
FACA ID: 507
Further Action: 0
Lat/Long (dms): 45 34 18.80 / -122 36 1.10
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: RWILLIA
Update Date: 12/01/2010
Created Date: 08/15/1988
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action

PORTLAND WILLAMETTE (Continued) **S108662017**

Decode For Legislative: Owner, operator or other party under state or federal authority

Hazardous Release:
Substance ID.: 121646
Haz Release ID: 378763
Qty Released: unknown
Date Released: unknown
Update Date: 01/08/1974
Update By: Not reported
Substance Code: 7440-02-0
Substance Name: NICKEL
Substance Abbrev.: Not reported
Substance Category ID: 8469
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8469
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319266
Sub Alias Name: NI
Sampling Result ID: 344544
Feature Id: Not reported
Hazard Release Id: 378763
Medium: 700
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/1974
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Sludge - 2400 mg/l
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Other

Substance ID.: 121472
Haz Release ID: 384198
Qty Released: unknown
Date Released: unknown
Update Date: 01/08/1974
Update By: Not reported
Substance Code: 57-12-5
Substance Name: CYANIDE (AS ION)
Substance Abbrev.: Not reported
Substance Category ID: 8465
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8465

PORTLAND WILLAMETTE (Continued) **S108662017**

Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318818
Sub Alias Name: CN (AS ION)
Sampling Result ID: 344541
Feature Id: Not reported
Hazard Release Id: 384198
Medium: 700
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/1974
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Sludge - 7.37 mg/l
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Other

Substance ID.: 121673
Haz Release ID: 384199
Qty Released: unknown
Date Released: unknown
Update Date: 01/08/1974
Update By: Not reported
Substance Code: 7440-50-8
Substance Name: COPPER
Substance Abbrev.: Not reported
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319296
Sub Alias Name: CU
Sampling Result ID: 344542
Feature Id: Not reported
Hazard Release Id: 384199
Medium: 700
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/1974

PORTLAND WILLAMETTE (Continued) **S108662017**

End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Sludge - 1200 mg/l
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Other

Substance ID.: 121671
Haz Release ID: 384200
Qty Released: unknown
Date Released: unknown
Update Date: 01/08/1974
Update By: Not reported
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 344543
Feature Id: Not reported
Hazard Release Id: 384200
Medium: 700
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/1974
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Sludge - 31 mg/l
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Other

Narrative:
NARR ID: 5727522
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination

PORTLAND WILLAMETTE (Continued) **S108662017**

NARR Comments: Waste chemical sludge from the plant's treatment system was spread on-site for several years prior to 1974. The sludge contained cyanide, copper, chromium, and nickel. There was also a settling pond on-site that has since been filled in. (2/10/92 ALB/SAS) The site is the location of a manufacturer of fireplace equipment. Operations included electroplating which results in the generation of plating wastewater, which was managed with an on-site wastewater treatment facility. The on-site treatment facility, which uses cyanide destruction by chlorination followed by hydroxide precipitation, discharged to the Columbia Slough prior to 1993. Sludges from the treatment faility were landfarmed on the property until 1974. Facility expansion resulted in the removal of soils in the sludge disposal area. The facility had several violations of its NPDES permit for exceeding nickel and/or copper limits. There was a spill of nickel solution in 1976. Chrome was dropped from the process in 1974. A non-PCB transformer oil release occurred at the site in 1992. Most of the impacted soils were removed.

NARR ID: 5727523
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: RWILLIA
Updated Date: 12/01/2010
Decode for NarcdID: Data Sources
NARR Comments: DEQ NWR file. Report entitled: <quot>Mineral Oil Release at Portland Willamette Site,<quot> prepared by CH2M Hill 9/93. DEQ ECSI file for #2767 PNG Environmental, 2007, <quot>Draft Expanded Preliminary Assessment and Stormwater/Source Control Assessment Work Plan, Portland Willamette Company - Adjacent Slough Sediment Site, 6800 NE 59th Place, Portland, Oregon<quot>, August 27, 2007. PNG Environmental, 2007, <quot>Draft Expanded Preliminary Assessment and Stormwater/Source Control Assessment Work Plan, Portland Willamette Company - Adjacent Slough Sediment Site, 6800 NE 59th Place, Portland, Oregon<quot>, October 17, 2007. PNG Environmental, 2008, <quot>Work Plan Outfall 77A Storm Sewer Sediment Sampling Plan, Portland Willamette Company - Adjacent Slough Sediment Site, 6800 NE 59th Place, Portland, Oregon<quot>, April 7, 2008. PNG Environmental, 2008, <quot>Outfall 77A Storm Sewer Sediment Sampling Technical Memorandum: Portland Willamette Company - Adjacent Slough Sediment Site, September 24, 2008. PNG Environmental, 2010, <quot>Expanded Preliminary Assessment and Stormwater/Source Control Report<quot>, January 28, 2010.

NARR ID: 5727524
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: chrome, nickel, copper.

NARR ID: 5727525
NARR Code: Project Issues Summary
Created By: Not reported
Created Date: 12/17/2002

PORTLAND WILLAMETTE (Continued) **S108662017**

Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Project Issues Summary
NARR Comments: The 9/8/95 VCP file review memo identified apparently elevated levels of cadmium, chromium, nickel, lead, zinc, and oil in Columbia Slough sediments adjacent to the former NPDES outfall. VCP agreed to defer the investigation of Columbia Slough sediments in the outfall area to the DEQ Columbia Slough study.

NARR ID: 5755876
NARR Code: Site Location
Created By: GWISTAR
Created Date: 11/03/2015
Updated By: GWISTAR
Updated Date: 11/03/2015
Decode for NarcdID: Site Location
NARR Comments: See also ECSI #2767, Portland Willamette Co. - Slough Sediments - a related but entirely separate site.

NARR ID: 5727526
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Sludges from electroplating process landfarmed on-site from 1969 to 1974. Miscellaneous spills and NPDES permit violations.

NARR ID: 5727527
NARR Code: Site Ownership
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Ownership
NARR Comments: Named Metier Corp. (’69), Modern Firescreen Co. (’70), P-W Co. (’72).

NARR ID: 5727528
NARR Code: Project Activity Status
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Project Activity Status
NARR Comments: NFA letter issued July 15, 1996.

NARR ID: 5727529
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Surface water: NPDES permitted wastewater discharges to the Columbia Slough prior to 1993 may have accumulated contaminants (metals) in slough sediments. Soils: Non-PCB transformer oil release at site in

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1992 was mostly cleaned up. Site soils are covered by existing structures or pavement. Groundwater: Groundwater testing to date has not revealed hazardous substance impacts.

NARR ID: 5727530
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: RWILLIA
Updated Date: 11/24/2010
Decode for NarcdID: Remedial Action
NARR Comments: Site Assessment reviewed ECD files and recommended that the site be given a low priority for a Preliminary Assessment. At the same time, Site Assessment determined that no further action was needed regarding a 1992 spill of non-PCB transformer oil. By Letter Agreement, Thomas Industries joined DEQ's Voluntary Cleanup Program (VCP) on 4/24/95, and requested VCP review of environmental investigation reports completed at the site to date to determine if a NFA determination could be made. VCP completed its review and summarized its findings in a memorandum dated 9/8/95. Thomas Industries performed additional soil and groundwater investigation in May 1996 in response to VCP recommendations. Based on the previous work and the May 1996 investigation results, VCP issued a NFA letter to Thomas Industries on July 15, 1996. As agreed, the site investigation did not include an assessment of whether deposition or accumulation of hazardous substances had occurred in the adjacent Columbia Slough. Therefore, the DEQ NFA does not extend to the Slough sediments. The information on that site has been referred to the DEQ Columbia Slough study (see ECSI #2767). 11/24/10 RKW Sediment sampling in the Whitaker Slough inlet, a side slough of the Columbia Slough, was performed in 2007 (see ECSI #2767). The responsible parties for Portland Willamette elected to settle their responsibility for contaminated sediment through a settlement with DEQ. A source control investigation was performed for the uplands portion of the site and is documented in the November 23, 2010 Staff Report/Source Control Decision document. A new NFA document was prepared for the site to update the original NFA with the stormwater source control decision.

Administrative Action:
Action ID: 9443
Region: Northwestern Region
Complete Date: 11/30/2010
Rank Value: Not reported
Cleanup Flag: True
Created Date: 12/01/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 07/15/1996
Rank Value: 0

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Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 07/15/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9427
Region: Northwestern Region
Complete Date: 07/15/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Excluded from confirmed release definition
Further Action: Not reported
Comments: Not reported

Action ID: 9520
Region: Northwestern Region
Complete Date: 07/15/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: EXPANDED PRELIMINARY ASSESSMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 07/15/1996
Rank Value: 0
Cleanup Flag: False

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Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 04/02/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 04/02/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Not reported
Comments: Not reported

Action ID: 9442
Region: Northwestern Region
Complete Date: 12/20/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

PORTLAND WILLAMETTE (Continued) **S108662017**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Not reported
Complete Date: 03/09/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9431
Region: Not reported
Complete Date: 07/15/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Place on hold
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Northwestern Region
Complete Date: 01/31/1994
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Low
Comments: Not reported

Operations:
Operation Id: 132275
Operation Status: Active
Common Name: Portland-Willamette Co.
Yrs of Operation: 1969 to present.
Comments: Manufacturer of fireplace equipment, metal plating, electroplating.
Updated Date: 09/13/1994
Updated By: CONV

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Decode for OpstatID:	Active
Operations SIC Id:	194878
SIC Code:	3429
Created By:	Not reported
Created Date:	12/17/2002
Operations SIC Id:	194879
SIC Code:	3471
Created By:	Not reported
Created Date:	12/17/2002

HAZMAT:

Responsble Party:	THOMAS INDUSTRIES
RP Company:	Not reported
RP Address:	6800 NE 59TH PL
RP City,St,Zip:	PORTLAND, OR 97218
Facility ID:	920132
OERS Number:	Not reported
Dept Rsp:	PORTLAND BUREAU OF F&R&EMS
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	PORTLAND BUREAU OF F&R&EMS
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	0008233850

PORTLAND WILLAMETTE (Continued) **S108662017**

Osfm Incident Report Number:	920132
Dept. Responding:	PORTLAND BUREAU OF F&R&EMS
Person Making Report:	MICHEAL PORTER
Title:	LT
Agency:	PORTLAND BUREAU OF F&R&EMS
Phone:	0008233850
Date Of Incident:	04/24/1992
Call Time:	6:35:00 PM
In Route:	12:00:00 AM
Arrival:	7:36:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	12:00:00 AM
Dist Of Incident:	PORTLAND BUREAU OF F&R&EMS
Were State Resources Used?:	False
Was Oers Notified?:	True
Oers Number:	Not reported
Team Number:	Not reported
Agency Report Number:	92-13446
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Public Structure
Area Type:	Industrial
Responsible Party(Ies):	THOMAS INDUSTRIES
Company:	Not reported
Respcontact:	Not reported
Address:	6800 NE 59TH PL
Resp City:	PORTLAND
Resp State:	OR
Resp ZipCode:	97218
Phone:	0002887511
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	Normal Operation
Cause:	Unknown
Vehicle And Cargo:	0
Fixed Property:	0
Total Loss:	$0.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	6246
Chemical Id:	35430

PORTLAND WILLAMETTE (Continued) **S108662017**

Incident Id:	920132
Chemical Name:	UNKNOWN CHEMICAL
UNNA:	Not reported
Amount At Risk:	0
Amount Released:	0
Amount Measured:	0
Biological:	False
Radiological:	False

Chemical Id:	35430
Chemical Name:	UNKNOWN CHEMICAL
Hazardous Ingredient:	UNKNOWN CHEMICAL
Hazardous Class 1:	9.0
Hazardous Class 2:	Not reported
Hazardous Rank:	2
Case Number:	Not reported
UNNA Number:	Not reported
EPA Pest Reg:	Not reported
EHA Chem:	Not reported
PSM Chem:	Not reported
CAA 112R Chem:	Not reported

Method:

Method Used Id:	7008
Incident Id:	920132
Identity Method:	1

Released:

Release Behavior Id:	7306
Incident Id:	920132
Behavior:	10

Narrative:

Narrative Id:	3761
Incident Id:	920132
Incident Narrative:	METAL PLATING FACILITY HAD AN EXPLOSION INSIDE THE BLDG WHILE NO ONE WAS INSIDE.
Incident Date:	4/24/1992

HSIS:

Facility ID:	005147
Department Or Division Of Company:	CARDINAL ALUMINUM ORE LLC
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	Y
Contains 112R:	Y
NAICS Code 1:	331210
NAICS Desc 1:	IRON & STEEL PIPE & TUBE MFG FROM PURCHASE
NAICS Code 2:	332813
NAICS Desc 2:	ELECTROPLATING, PLATING, POLISHING, ANODI
Manager Name:	BOB SACHEN
Business Phone:	5032887511
Mailing Address:	6800 NE 59TH PL
Mailing City:	PORTLAND
Mailing State:	OR

PORTLAND WILLAMETTE (Continued) **S108662017**

Mailing Zip:	97218
No. of Employees:	60
Day Phone:	5032887511
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	BOB SACHEN
Emergency Procedure:	BOB SACHENS OFFICE
Business Type:	LIGHT METAL FABRICATION
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	INSTAPAK COMPONENT B
Physical Description:	LIQUID
Case Number:	56815
Facility Id:	005147
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	N
Description:	PLASTIC BOTTLE, JUG, BUCKET

PORTLAND WILLAMETTE (Continued) **S108662017**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	AMINE CATALYST
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	INSTAPAK COMPONENT B
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	56815
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	INSTAPAK-A-40
Physical Description:	LIQUID
Case Number:	9016879
Facility Id:	005147
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	N
Description:	PLASTIC BOTTLE, JUG, BUCKET

PORTLAND WILLAMETTE (Continued) **S108662017**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	DIPHENYLMETHANE-4,4-DIISOCYANATE
United Nations/north America 4 Digit Class Number:	2489
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Poisonous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.1
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	INSTAPAK-A-40
United Nations/north America 4 Digit Class Number:	2489
Chemical Abstract Service Identifier Number:	9016879
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Poisonous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.1
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	NITROGEN
Physical Description:	GAS
Case Number:	7727379
Facility Id:	005147
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER

PORTLAND WILLAMETTE (Continued) **S108662017**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Chemical Abstract Service Identifier Number:	7727379
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	005147
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER

PORTLAND WILLAMETTE (Continued) **S108662017**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN LIQUID
Physical Description:	LIQUID
Case Number:	7782447
Facility Id:	005147
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	31
Max Amt Possessed During Year CD:	31
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	S
Description:	DEWAR

PORTLAND WILLAMETTE (Continued) **S108662017**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	CRYOGENIC CONDITIONS
Temperature of The Hazardous Substance Code:	7
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	240
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	50,000-99,999
Description Of The Avg Qnty Code:	50,000-99,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1073
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Oxidizers
Third Hazardous Class Code For Chemical:	Acute Health Hazard
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	5.1
Hazard Class 3 Of The Chemical:	6.3

Chemical:

Chemical Name:	OXYGEN LIQUID
United Nations/north America 4 Digit Class Number:	1073
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Oxidizers
Third Hazardous Class Code For Chemical:	Acute Health Hazard
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	5.1
Hazard Class 3 Of The Chemical:	6.3
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	SODIUM CYANIDE
Physical Description:	SOLID
Case Number:	143339
Facility Id:	005147
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	10
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	D
Description:	STEEL DRUM

PORTLAND WILLAMETTE (Continued) **S108662017**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	200-499
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	SODIUM CYANIDE
United Nations/north America 4 Digit Class Number:	1689
Hazard Rank:	3
EHS Ingredient:	SODIUM CYANIDE
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Poisonous Material
Second Hazardous Class Code For Chemical:	Reactive Material
Third Hazardous Class Code For Chemical:	Corrosive Material
Hazard Class 1 Of The Chemical:	6.1
Hazard Class 2 Of The Chemical:	4.4
Hazard Class 3 Of The Chemical:	8.0

Chemical:

Chemical Name:	SODIUM CYANIDE
United Nations/north America 4 Digit Class Number:	1689
Chemical Abstract Service Identifier Number:	143339
Chemical Is Extremely Hazardous Substance (EHS):	Y
First Hazardous Class Code For Chemical:	Poisonous Material
Second Hazardous Class Code For Chemical:	Reactive Material
Third Hazardous Class Code For Chemical:	Corrosive Material
Hazard Class 1 Of The Chemical:	6.1
Hazard Class 2 Of The Chemical:	4.4
Hazard Class 3 Of The Chemical:	8.0
Chemical Is A Toxic 313 Chemical:	Y
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	BLACK POWDER EPOXY
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	005147
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	K
Description:	BOX

PORTLAND WILLAMETTE (Continued) **S108662017**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	EPOXY RESIN
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	BLACK POWDER EPOXY
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	ACTISALT
Physical Description:	SOLID
Case Number:	7681381
Facility Id:	005147
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	I
Description:	FIBER DRUM

PORTLAND WILLAMETTE (Continued) **S108662017**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	SODIUM BISULFATE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	False
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Reactive Material
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	4.4

Chemical:

Chemical Name:	ACTISALT
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	7681381
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Reactive Material
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	4.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	CARBON DIOXIDE
Physical Description:	GAS
Case Number:	124389
Facility Id:	005147
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER

PORTLAND WILLAMETTE (Continued) **S108662017**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1013
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1013
Chemical Abstract Service Identifier Number:	124389
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	005147
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER

PORTLAND WILLAMETTE (Continued) **S108662017**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Chemical Abstract Service Identifier Number:	74862
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NPDES:

WQ File Nbr:	71443
Legal Name:	CARDINAL ALUMINUM OREGON, LLC
Region:	Not reported
Pri SIC:	3429
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported

PORTLAND WILLAMETTE (Continued) **S108662017**

Permit Type:	GEN01
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	71443
Legal Name:	CARDINAL ALUMINUM OREGON, LLC
Region:	Not reported
Pri SIC:	3429
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12H
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	71443
Legal Name:	CARDINAL ALUMINUM OREGON, LLC
Region:	Not reported
Pri SIC:	3429
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12L
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported

PORTLAND WILLAMETTE (Continued) **S108662017**

Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	71443
Legal Name:	CARDINAL ALUMINUM OREGON, LLC
Region:	Not reported
Pri SIC:	3429
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12Z
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	71443
Legal Name:	CARDINAL ALUMINUM OREGON, LLC
Region:	Not reported
Pri SIC:	3429
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	NPDES-IW-Dii
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported

PORTLAND WILLAMETTE (Continued) **S108662017**

Start Date: Not reported
Region Decode: Not reported

OR UIC:
UIC Well #: 1
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Active Permit
UIC Number: 10545
Facility Status: Registered w/permit
Lat/Long: 45.570999 / -122.6009

UIC Well #: 2
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Active Permit
UIC Number: 10545
Facility Status: Registered w/permit
Lat/Long: 45.570999 / -122.6009

UIC Well #: 3
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Active Permit
UIC Number: 10545
Facility Status: Registered w/permit
Lat/Long: 45.570999 / -122.6009

H49 **PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS** **OR ECSI** **S103842018**
SSW **6800 NE 59TH PL. (UPLAND SOURCE)** **N/A**
1/4-1/2 **PORTLAND, OR 97218**
0.250 mi.
1321 ft. **Site 2 of 2 in cluster H**

Relative:
Higher

Actual:
43 ft.

ECSI:
State ID Number: 2767
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 91876
Further Action: 0
Lat/Long (dms): 45 34 23.20 / -122 36 .70
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: A
Tax Lots: adjacent to 1N2E18A 0800
Size: 1 acre (approx.)
NPL: False
Orphan: False

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Updated By: GWISTAR
Update Date: 07/14/2014
Created Date: 11/29/2000
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: Cardinal Aluminum Oregon LLC
Alias Name: Byers Industries
Alias Name: Thomas Industries Inc.
Alias Name: Thomas Industries, C/O of Gardner Denver Inc

Hazardous Release:
Substance ID.: 121668
Haz Release ID: 386678
Qty Released: unknown
Date Released: 1969 to 1993
Update Date: 10/10/2005
Update By: CHARMAN
Substance Code: 7440-43-9
Substance Name: CADMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319291
Sub Alias Name: CD
Sampling Result ID: 348355
Feature Id: 0
Hazard Release Id: 386678
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: unknown
Start Date: 02/28/1994
End Date: 02/28/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2.4 mg/kg (Sed-1)
Last Update By: CHARMAN
Update Date: 10/10/2005
Decode for MediumID: Sediment
Sampling Result ID: 348356
Feature Id: 0
Hazard Release Id: 386678
Medium: 701
Substance Abbrev.: 0

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: unknown
Start Date: 02/28/1994
End Date: 02/28/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 7.0 mg/kg (Sed-3)
Last Update By: CHARMAN
Update Date: 10/10/2005
Decode for MediumID: Sediment
Sampling Result ID: 349365
Feature Id: 0
Hazard Release Id: 386678
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/20/2007
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 7.6 mg/kg
Last Update By: RWILLIA
Update Date: 04/05/2010
Decode for MediumID: Sediment

Substance ID.: 121671
Haz Release ID: 386679
Qty Released: unknown
Date Released: 1969 to 1993
Update Date: 10/10/2005
Update By: CHARMAN
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 348357
Feature Id: 0

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Hazard Release Id:	386679
Medium:	701
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	unknown
Start Date:	02/28/1994
End Date:	02/28/1994
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	85.0 mg/kg (Sed-1)
Last Update By:	CHARMAN
Update Date:	10/10/2005
Decode for MediumID:	Sediment
Sampling Result ID:	348358
Feature Id:	0
Hazard Release Id:	386679
Medium:	701
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	unknown
Start Date:	02/28/1994
End Date:	02/28/1994
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	85.0 mg/kg (Sed-2)
Last Update By:	CHARMAN
Update Date:	10/10/2005
Decode for MediumID:	Sediment
Sampling Result ID:	348359
Feature Id:	0
Hazard Release Id:	386679
Medium:	701
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	unknown
Start Date:	02/28/1994
End Date:	02/28/1994
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	73 mg/kg (Sed-3)
Last Update By:	CHARMAN
Update Date:	10/10/2005
Decode for MediumID:	Sediment
Sampling Result ID:	349366
Feature Id:	0
Hazard Release Id:	386679
Medium:	701
Substance Abbrev.:	0

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/20/2007
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 266 mg/kg
Last Update By: RWILLIA
Update Date: 04/05/2010
Decode for MediumID: Sediment

Substance ID.: 121472
Haz Release ID: 386680
Qty Released: unknown
Date Released: 1969 to 1993
Update Date: 10/10/2005
Update By: CHARMAN
Substance Code: 57-12-5
Substance Name: CYANIDE (AS ION)
Substance Abbrev.: Not reported
Substance Category ID: 8465
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8465
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318818
Sub Alias Name: CN (AS ION)
Sampling Result ID: 348360
Feature Id: 0
Hazard Release Id: 386680
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: unknown
Start Date: 02/28/1994
End Date: 02/28/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 5.0 mg/kg (Sed-1)
Last Update By: CHARMAN
Update Date: 10/10/2005
Decode for MediumID: Sediment
Sampling Result ID: 348361
Feature Id: 0
Hazard Release Id: 386680
Medium: 701

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: unknown
Start Date: 02/28/1994
End Date: 02/28/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1.2 mg/kg (Sed-2)
Last Update By: CHARMAN
Update Date: 10/10/2005
Decode for MediumID: Sediment
Sampling Result ID: 348362
Feature Id: 0
Hazard Release Id: 386680
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: unknown
Start Date: 02/28/1994
End Date: 02/28/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1.5 mg/kg (Sed-3)
Last Update By: CHARMAN
Update Date: 10/10/2005
Decode for MediumID: Sediment
Sampling Result ID: 349872
Feature Id: 0
Hazard Release Id: 386680
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/21/2007
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1.9 mg/Kg
Last Update By: RWILLIA
Update Date: 04/05/2010
Decode for MediumID: Sediment

Substance ID.: 121639
Haz Release ID: 386681
Qty Released: unknown
Date Released: 1969 to 1993
Update Date: 10/10/2005
Update By: CHARMAN

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Substance Code:	7439-92-1
Substance Name:	LEAD
Substance Abbrev.:	Not reported
Substance Category ID:	8466
Substance Category:	Inorganics
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8466
Substance Category:	Inorganics
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Alias ID:	319256
Sub Alias Name:	PB
Sampling Result ID:	348363
Feature Id:	0
Hazard Release Id:	386681
Medium:	701
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	unknown
Start Date:	02/28/1994
End Date:	02/28/1994
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	494 mg/kg (Sed-1)
Last Update By:	CHARMAN
Update Date:	10/10/2005
Decode for MediumID:	Sediment
Sampling Result ID:	348364
Feature Id:	0
Hazard Release Id:	386681
Medium:	701
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	unknown
Start Date:	02/28/1994
End Date:	02/28/1994
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	711 mg/kg (Sed-2)
Last Update By:	CHARMAN
Update Date:	10/10/2005
Decode for MediumID:	Sediment
Sampling Result ID:	348365
Feature Id:	0
Hazard Release Id:	386681
Medium:	701
Substance Abbrev.:	0
Unit Code:	Not reported

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: unknown
Start Date: 02/28/1994
End Date: 02/28/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 439 mg/kg (Sed-3)
Last Update By: CHARMAN
Update Date: 10/10/2005
Decode for MediumID: Sediment
Sampling Result ID: 349367
Feature Id: 0
Hazard Release Id: 386681
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/20/2007
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 741 mg/kg
Last Update By: RWILLIA
Update Date: 04/05/2010
Decode for MediumID: Sediment

Substance ID.: 121646
Haz Release ID: 386682
Qty Released: unknown
Date Released: 1969 to 1993
Update Date: 10/10/2005
Update By: CHARMAN
Substance Code: 7440-02-0
Substance Name: NICKEL
Substance Abbrev.: Not reported
Substance Category ID: 8469
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8469
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319266
Sub Alias Name: NI
Sampling Result ID: 348366
Feature Id: 0
Hazard Release Id: 386682
Medium: 701
Substance Abbrev.: 0

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	unknown
Start Date:	02/28/1994
End Date:	02/28/1994
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	43 mg/kg (Sed-1)
Last Update By:	CHARMAN
Update Date:	10/10/2005
Decode for MediumID:	Sediment
Sampling Result ID:	348367
Feature Id:	0
Hazard Release Id:	386682
Medium:	701
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	unknown
Start Date:	02/28/1994
End Date:	02/28/1994
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	84.0 mg/kg (Sed-2)
Last Update By:	CHARMAN
Update Date:	10/10/2005
Decode for MediumID:	Sediment
Sampling Result ID:	348368
Feature Id:	0
Hazard Release Id:	386682
Medium:	701
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	unknown
Start Date:	02/28/1994
End Date:	02/28/1994
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	75.0 mg/kg (Sed-3)
Last Update By:	CHARMAN
Update Date:	10/10/2005
Decode for MediumID:	Sediment
Sampling Result ID:	349368
Feature Id:	0
Hazard Release Id:	386682
Medium:	701
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Lab Data: True
Sample Depth: Not reported
Start Date: 11/22/2007
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 89 mg/kg
Last Update By: RWILLIA
Update Date: 04/05/2010
Decode for MediumID: Sediment

Substance ID.: 121679
Haz Release ID: 386683
Qty Released: unknown
Date Released: 1969 to 1993
Update Date: 10/10/2005
Update By: CHARMAN
Substance Code: 7440-66-6
Substance Name: ZINC
Substance Abbrev.: Not reported
Substance Alias ID: 319302
Sub Alias Name: ZN
Sampling Result ID: 348369
Feature Id: 0
Hazard Release Id: 386683
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: unknown
Start Date: 02/28/1994
End Date: 02/28/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 728 mg/kg (Sed-1)
Last Update By: CHARMAN
Update Date: 10/10/2005
Decode for MediumID: Sediment
Sampling Result ID: 348370
Feature Id: 0
Hazard Release Id: 386683
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: unknown
Start Date: 02/28/1994
End Date: 02/28/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 306 mg/kg (Sed-2)
Last Update By: CHARMAN
Update Date: 10/10/2005

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Decode for MediumID: Sediment
Sampling Result ID: 348371
Feature Id: 0
Hazard Release Id: 386683
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: unknown
Start Date: 02/28/1994
End Date: 02/28/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 884 mg/kg (Sed-3)
Last Update By: CHARMAN
Update Date: 10/10/2005
Decode for MediumID: Sediment
Sampling Result ID: 349369
Feature Id: 0
Hazard Release Id: 386683
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/20/2007
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 937 mg/kg
Last Update By: RWILLIA
Update Date: 04/05/2010
Decode for MediumID: Sediment

Substance ID.: 121673
Haz Release ID: 387264
Qty Released: unknown
Date Released: unknown
Update Date: 05/29/2009
Update By: RWILLIA
Substance Code: 7440-50-8
Substance Name: COPPER
Substance Abbrev.: Not reported
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Substance Alias ID: 319296
Sub Alias Name: CU
Sampling Result ID: 349490
Feature Id: 0
Hazard Release Id: 387264
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/20/2007
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 3,750 mg/kg
Last Update By: RWILLIA
Update Date: 04/05/2010
Decode for MediumID: Sediment

Substance ID.: 121989
Haz Release ID: 387505
Qty Released: unknown
Date Released: unknown
Update Date: 04/05/2010
Update By: RWILLIA
Substance Code: ECD200
Substance Name: OIL OR FUEL RELATED COMPOUNDS
Substance Abbrev.: Not reported
Substance Category ID: 8532
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8532
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 349873
Feature Id: 0
Hazard Release Id: 387505
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/20/2007
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 35,300 mg/Kg
Last Update By: RWILLIA
Update Date: 04/05/2010

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Decode for MediumID: Sediment

Substance ID.: 120908
Haz Release ID: 387506
Qty Released: unknown
Date Released: unknown
Update Date: 04/05/2010
Update By: RWILLIA
Substance Code: 11096-82-5
Substance Name: PCB 1260
Substance Abbrev.: Not reported
Substance Category ID: 8496
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8557
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8496
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8557
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316557
Sub Alias Name: AROCHLOR 1260
Substance Alias ID: 316558
Sub Alias Name: AROCLOR 1260
Sampling Result ID: 349874
Feature Id: 0
Hazard Release Id: 387506
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/20/2007
End Date: 04/05/2010
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.14 mg/Kg
Last Update By: RWILLIA
Update Date: 04/05/2010
Decode for MediumID: Sediment

Narrative:
NARR ID: 5747282
NARR Code: Contamination
Created By: CHARMAN

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Created Date: 10/03/2005
Updated By: GWISTAR
Updated Date: 02/14/2006
Decode for NarcdID: Contamination
NARR Comments: Three sediment samples were acquired in February 1994 by Thomas Industries as part of their cleanup efforts. The sediment samples where acquired around the inlet area where PWC process wastewaters discharged. All samples showed elevated levels of diesel- and oil-range petroleum hydrocarbons, cadmium, chromium, lead, nickel, zinc, and cyanide. Copper in sediments was not analyzed for. DEQ has established baseline sediment concentrations for numerous detected contaminants in the Columbia Slough. The Columbia Slough baseline values are statistically based concentrations, developed from sediment sampling events in 1991 and 1994, which represent a system-wide ambient level.<quot> The baseline values were established to help DEQ, the City of Portland and potential responsible parties focus assessment and cleanup efforts on those areas of contamination that represent locally elevated concentrations of contamination above the Slough s ambient level of contamination (visit http://www.deq.state.or.us/nwr/Columbia_Slough/cs.htm for more information). The 1994 measured sediment concentrations of chromium, lead, nickel and cyanide exceed Columbia Slough baseline concentrations for all three of the collected samples. Concentrations of cadmium and zinc exceed the baseline in samples Sed-1 and Sed-3. All detected concentrations of the metals and cyanide exceeded DEQ s established risk-based ecological screening level values (SLVs) for freshwater sediment. PWC sediment concentrations for cadmium, chromium, lead, nickel, zinc, and cyanide are well above concentrations measured in up- and downstream samples. It should be noted that the 1994 PWC sediment samples were not evaluated for copper. Chromium, copper, nickel, and cyanide were contaminants of concern for the upland site (see ECSI #976). NOTES ON PWC WASTE MANAGEMENT AND UPLAND CLEANUP: PWC entered into DEQ s Cleanup Program in April of 1995 to address site contamination from past waste handling practices (see ECSI #976). In July 1996, PWC received a No Further Action (NFA) determination from DEQ for site soil and groundwater issues. At that time, DEQ did not require PWC to address known contamination problems in slough sediments where PWC s wastewater was discharged and those issues were identified separately as ECSI #2767 (this site). Former waste management practices are summarized below: The facility currently manufactures fireplace equipment but has always been a plating operation. Past and present operations included electroplating, generating plating wastewater that is treated on-site. The on-site treatment facility uses cyanide destruction by chlorination followed by hydroxide precipitation. Wastewaters from this process were discharged to the Whitaker Slough until 1993 under a DEQ National Pollution Discharge Elimination System (NPDES) permit. Prior to 1978, treated waste water discharged to a lined settling pond located on the north end of the property, prior to discharging to the Slough. Waste chemical sludge from the plant s treatment system was spread on-site for several years prior to 1974 (estimated to be 1969 to 1974). The sludge contained brass, calcium oxide, cyanide, copper cyanide, copper sulfate, chromium, and nickel sulfate/nickel chloride, alkaline cleaning solutions, sulfuric acid, zinc phosphate, and iron phosphate. The company experienced several exceedances of its NPDES wastewater discharge permit for nickel, cyanide, and pH between April 1990 and February 1992,

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

according to DEQ Water Quality records. After 1993, PWC directed process wastewaters to open fiberglass tanks to enhance evaporation; remaining sludge is collected and managed as hazardous waste.

NARR ID: 5747291
NARR Code: Data Sources
Created By: CHARMAN
Created Date: 10/04/2005
Updated By: RWILLIA
Updated Date: 04/05/2010
Decode for NarcdID: Data Sources
NARR Comments: Agency for Toxic Substances and Disease Registry (ATSDR), ToxFAQs database, URL: http://atsdr1.atsdr.cdc.gov:8080/toxfaq.html. September 2005. Cardinal Aluminum Oregon L.L.C. d.b.a. Portland Willamette, Stormwater Pollution Control Plan, NPDES Stormwater Discharge Permit 1200 COLS, File No. 71443/B , Revised February 7, 2005. GeoEngineers, Report of Geotechnical Services, Expanded Phase II Environmental Site Assessment, Portland-Willamette Electroplating Facility, Portland, Oregon, for Thomas Industries, Inc. and Byers Industries, Inc., April 12, 1994. Oregon Department of Environmental Quality (DEQ) Environmental Cleanup Site Information Database (ECSI) and files, Northwest Region Office, 2020 SW 4th Avenue, Suite 400, Portland, OR. ECSI #976. Oregon DEQ, Land Quality Division Risked Based Decision Making for the Remediation of Petroleum Contaminated Sites, September 22, 2003. [URL: http://www.deq.state.or.us/wmc/tank/rbdm.htm]. Oregon DEQ, Memorandum Voluntary Cleanup File Review [for Portland-Willamette Compan, ECSI File #976], September 8, 1995. Oregon Water Resources Department Well Log Database, Well Log Query Application, URL - http://apps.wrd.state.or.us/apps/gw/well_log/well_log.php, September 2005. Portland Metropolitan Regional Government Nature in Neighborhoods maps, Exhibit A: Regionally significant fish and wildlife habitat inventory map, (URL: http://www.metro-region.org/library_docs/nature/1077b_habitat.pdf) PNG Environmental, 2007, <quot>Draft Expanded Preliminary Assessment and Stormwater/Source Control Assessment Work Plan, Portland Willamette Company - Adjacent Slough Sediment Site, 6800 NE 59th Place, Portland, Oregon<quot>, August 27, 2007. PNG Environmental, 2007, <quot>Draft Expanded Preliminary Assessment and Stormwater/Source Control Assessment Work Plan, Portland Willamette Company - Adjacent Slough Sediment Site, 6800 NE 59th Place, Portland, Oregon<quot>, October 17, 2007. PNG Environmental, 2008, <quot>Work Plan Outfall 77A Storm Sewer Sediment Sampling Plan, Portland Willamette Company - Adjacent Slough Sediment Site, 6800 NE 59th Place, Portland, Oregon<quot>, April 7, 2008. PNG Environmental, 2008, <quot>Outfall 77A Storm Sewer Sediment Sampling Technical Memorandum: Portland Willamette Company - Adjacent Slough Sediment Site, September 24, 2008. PNG Environmental, 2010, <quot>Expanded Preliminary Assessment and Stormwater/Source Control Report<quot>, January 28, 2010. Sound Ecological Endeavors, 2008, <quot>Scoping Level Ecological Risk Assessment Report for Porland-Willamette Co.<quot>, May 2008. U. S. Environmental Protection Agency (USEPA), Ecological Risk Assessment, Information on the Toxic Affects of Various Chemicals and Groups of Chemicals, [URL: http://www.epa.gov/region5/superfund/ecology/html/toxprofiles.htm#cu]; September 2005.

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

NARR ID: 5747280
NARR Code: General Site Description
Created By: CHARMAN
Created Date: 10/03/2005
Updated By: CHARMAN
Updated Date: 10/11/2005
Decode for NarcdID: General Site Description
NARR Comments: The site addressed through this evaluation is located in northeast Portland in a section of Whitaker Slough from approximately rivermile 1.11 to 1.17 upstream of the confluence of Whitaker Slough and the main channel of the Columbia Slough (see Figures 1 and 2). The subject site includes the main channel of Whitaker slough and a small rounded inlet. Whitaker Slough is a waterway characterized by slow moving waters surrounded by steep sloped banks. Water flow in this section of the Columbia Slough is managed by the Multnomah County Drainage District, which controls water levels via a series of pumps for the purposes of stormwater management and flood control. The upland source area is the Portland Willamette Company (PWC) property. The PWC electroplating operation is located on 9.74 acres of industrially-zoned land (General Industrial 2, IG2h) in northeast Portland, at 6800 NE 50th Place. The upland area is relatively flat, with a gentle slope to the north, towards the Slough. The upland site is largely paved or covered by a single 198,000 square foot building. Two residential farm-zoned properties are located adjacent to the site to the southeast and about 300 feet to the north and the east of the PWC property (see Figure 2). The upland site is underlain by fine to medium sands below surface fill materials (sand and gravel fill) to depths ranging from 4.5 feet to 12 feet below ground surface. Fine to coarse gravel with fine to medium coarse and/or silt and cobbles were observed beneath the sands to depths of 30 feet in bore holes on the PWC site. Depth to shallow groundwater on the upland site, as measured by monitoring wells, ranges from 16 to 24 feet below ground surface. Shallow groundwater flow direction in the upland area has been measured as being toward the east, in a parallel and opposite direction to the flow of the Slough. The site is located in Section 18, Township 1 North, Range 2 East, Willamette Meridian. During a site visit in September 2005, DEQ noted that the small inlet to the Whitaker Slough just north of PWC had an irrigation pump placed in the water that was used by the neighboring small farm for irrigating food crops. Site stormwater from the upland PWC site is currently regulated and monitored via a National Pollution Discharge Elimination System (NPDES) permit with DEQ s Water Quality division. PWC currently has stormwater discharge points into the Whitaker Slough at three locations two outfalls that discharge into the small inlet area to the northeast and a third that discharges directly into the Slough near the site s western boundary. All three discharge locations are indicated on Figure 2. In addition, the approximate locations of City of Portland stormwater discharge outfalls are indicated on Figure 2.

NARR ID: 5747288
NARR Code: Hazardous Substance/Waste Types
Created By: CHARMAN
Created Date: 10/04/2005
Updated By: CHARMAN
Updated Date: 10/04/2005
Decode for NarcdID: Hazardous Substance/Waste Types

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

NARR Comments: cadmium, chromium, copper, cyanide, lead, nickel and zinc.

NARR ID: 5747314
NARR Code: Site Location
Created By: CHARMAN
Created Date: 10/10/2005
Updated By: GWISTAR
Updated Date: 11/03/2015
Decode for NarcdID: Site Location
NARR Comments: The site is located in the Whitaker Slough reach of the Columbia Slough. The area of interest is just downslope (north) of the Portland Willamette Company (PWC) operation and is estimated to extend from Whitaker Slough rivermile (RM) 1.11 to 1.17 upstream from its confluence with the main stem of the Columbia Slough (basically within the east and west property boundaries of PWC). The main area of known contamination in this area is the inlet. See Figures 1 and 2 in Site Photos. See also ECSI #976, the upland site.

NARR ID: 5747287
NARR Code: Manner of Release
Created By: CHARMAN
Created Date: 10/04/2005
Updated By: CHARMAN
Updated Date: 10/11/2005
Decode for NarcdID: Manner of Release
NARR Comments: There were several likely sources of contaminants from the Portland Willamette operation that entered Whitaker Slough. (a) One likely source could have been overland runoff of soils from the area where wastewater treatment sludges were landfarmed on site from 1969 to 1974. there are no records indicating how this area was managed and DEQ assumes the runoff could have entered the Slough at any point along the property s shoreline. It should be noted that PWC s stormwater outfalls have been in place since 1969 and could have provided a preferential pathway for site runoff to enter into Whitaker Slough. (b) Another source was the direct discharge of treated wastewaters from approximately 1974 to 1994 at the mapped discharge point, which is now identified as SW#3. (c) Another potential source of contamination to the Slough is continued discharge of metals via stormwater runoff from the site. DEQ s Stormwater program has records showing that the concentrations of copper in the Portland Willamette Company s stormwater had exceeded the (previous) expected stormwater benchmark of 0.036 mg/L for copper in 2001 and 2002. The benchmark concentration for copper in stormwater has since been increased to 0.1 mg/L.

NARR ID: 5747397
NARR Code: Media Contamination
Created By: JWAGGY
Created Date: 10/26/2005
Updated By: JWAGGY
Updated Date: 10/26/2005
Decode for NarcdID: Media Contamination
NARR Comments: Sediment

NARR ID: 5747313
NARR Code: Site Ownership
Created By: CHARMAN

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Created Date: 10/10/2005
Updated By: CHARMAN
Updated Date: 10/10/2005
Decode for NarcdID: Site Ownership
NARR Comments: Upland site - the Portland Willamette Company property is owned by Cardinal Aluminum Oregon, LLC. Area of sediment contamination is in Whitaker Slough.

NARR ID: 5747289
NARR Code: Pathways Other Hazards
Created By: CHARMAN
Created Date: 10/04/2005
Updated By: CHARMAN
Updated Date: 10/11/2005
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: This ECSI site designation is focused on the impact of PWC-sourced site contamination that has reached sediments in the Whitaker Slough reach of the Columbia Slough. Exposure pathways for site workers and other possible upland receptors of concern for the PWC site due to soil contamination have been investigated and addressed as part of the remedial evaluation described in ECSI #976. The PWC Slough Sediment site lays within an Environmental Conservation Zone designation established by the City of Portland. The Environmental Conservation zone conserves important resources and functional values in areas where the resources and functional values can be protected while allowing environmentally sensitive urban development. The Environmental Conservation overlay zone is applied wherever the City determines that significant resources and functional values are present. Exposure Pathways of Concern: Direct contact to humans via recreational contact with water and sediment - The Columbia Slough, including the Whitaker Slough reach, is becoming increasingly popular for small watercraft recreation. The Columbia Slough Watershed Council is housed in a building located approximately 0.61 mi downstream from PWC-Slough Sediment site and is used as the launching point for several small-craft boating events during the year. This exposure pathway is considered significant. Direct contact to aquatic and terrestrial species - Aquatic invertebrates and higher food chain species such as fish, piscivorous birds and certain terrestrial mammals could potentially be exposed to certain metals via direct contact with sediments. During a September 2005 site visit DEQ observed evidence of beaver activity in the Slough near the site. This exposure pathway is considered significant. Ingestion by humans, aquatic and terrestrial species via biological uptake, bioconcentration and biomagnification - primarily of cadmium and zinc. Subsistence and recreational fishing has been documented in several sections of the Columbia Slough. This exposure pathway is considered significant. Leaching of sediment contaminants into groundwater Contaminants in sediment pore waters could leach into shallow groundwaters during the dry season and periods when the water table is low. DEQ searched Oregon Water Resource Department (OWRD) records and found no domestic or community water supply wells in T1N R2E Section 18. The closest listed domestic-use well, registered for 6849 NE Columbia Blvd in 1959, is located about 0.5 mile to the southeast of the PWC site. The well is 70 feet deep. DEQ could find no record of the well being decommissioned. There are also two domestic use wells located about 1.65 miles to the west of the site. DEQ considers the potential threat of identified sediment

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contaminants reaching any of the domestic wells to be low. This site is located approximately 1.08 miles downstream from the western edge of the wellhead protection boundary for the Columbia South Shore Well (CSSW) field, a major backup source of Portland s drinking water. The CSSW is utilized primarily in the summer months to supplant the City s drinking water. However, DEQ considers the threat of identified sediment contaminants reaching the CSSW to be low. Uptake in adjacent farm plant materials As noted in General Site Description, a local small farm has an irrigation water intake located near the area of the known contaminated sediments in the inlet. Contaminants present in the water column or in particulate matter that is brought up by the water intake might be taken up in plant materials. DEQ s judgment, based on visual observation of the farmed land during the September 2005 site visit, is that the crops are for human consumption. Therefore, this exposure pathway is considered significant.

NARR ID: 5740447
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: RWILLIA
Updated Date: 01/22/2014
Decode for NarcdID: Remedial Action
NARR Comments: (11/29/2000) The Site Assessment Program sent an Information Request Letter in November 2000. A site screeing is recommended. (10/11/05 CWH/SAS) Site Assessment restarted project and notified Portland Willamette Company. A remedial investigation of sediments is needed, under a high priority. (6/14/07 RKW/SRS) A letter agreement signed by Thomas Industries, Cardinal Aluminum, and LIT Holdings received. Work plan for source control and slough sampling being prepared. (11/21/07 RKW/SRS) Sediment samples being collected. (4/2/08 RKW/SRS) Sediment sample results indicate widespread metals contamination, including copper, lead, cadmium, nickel, and zinc, in slough inlet. Additional investigation of discharge pipes planned. (3/18/09 RKW/SRS) Additional investigation of sediments in stormwater pipes upstream of City of Portland Outfall 77A indicated elevated lead, zinc, nickel, other metals, and petroleum and suggested that Outfall 77A as well as the PWC outfall has contributed to sediment contamination in the inlet. (5/29/09 RKW/SRS) Public comment period to run from June 1-30 for a Consent Judgment with DEQ v. Thomas Industries, Cardinal Aluminum, and LIT Holdings Industrial LP (the parties). The parties will pay $350,000 to DEQ to be used by DEQ for investigation, removal, and remedial action in the Whitaker Slough inlet. The parties will also pay $50,000 to DEQ for Natural Resources Damages. These funds will be used by DEQ for restoration work in the Columbia Slough watershed. (10/15/09 RKW/SRS) The Consent Judgment was filed by Multnomah County Circuit Court on September 9, 2009. The upland source control portion of the project is being completed under the original site ECSI number 976. (12/1/10 RKW) Additional DEQ sediment sampling in the Whitaker Slough inlet offshore from the Portland Willamette site is being planned for winter 2011. (3/26/12 RKW) Additional sediment sampling was performed by DEQ in 2011. The report is available at:
http://www.deq.state.or.us/lq/cu/nwr/ColumbiaSlough/ColumbiaSloughSedimentStudyWhitakerSlough.pdf The inlet offshore from Portland Willamette is one of the high priority areas for sediment

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cleanup. The 2009 settlement described in the Consent Judgment with Portland Willamette owners shifts responsibility for cleanup to DEQ. Sediment sampling in the <quot>pipeshed<quot> for City of Portland Outfall 77A shows that there are additional sources of sediment contamination in the area. Site Assessment work is needed to identify potential sources. (1/22/14 RKW) DEQ, with help from Multnomah Co. Drainage District, is performing a sediment cleanup in the inlet offshore from the Portland Willamette site. Cleanup is being funded by Columbia Slough settlements with cleanup RPs such as Portland Willamette.

NARR ID: 5747290
NARR Code: Health Threats
Created By: CHARMAN
Created Date: 10/04/2005
Updated By: CHARMAN
Updated Date: 10/11/2005
Decode for NarcdID: Health Threats
NARR Comments: The main threat from the contaminated sediments is to aquatic species via incidental ingestion, direct contact, consumption of contaminated aquatic invertebrates and potentially to terrestrial mammals and humans via consumption of aquatic invertebrates and fish, respectively. Human direct contact exposure to contaminated sediments and possible uptake into consumable plant materials via irrigation are two other potential pathways of exposure. The contaminants of concern for this site are cadmium, chromium, copper, cyanide, lead, nickel and zinc.

NARR ID: 5747281
NARR Code: Site History
Created By: CHARMAN
Created Date: 10/03/2005
Updated By: CHARMAN
Updated Date: 10/06/2005
Decode for NarcdID: Site History
NARR Comments: The Whitaker Slough is a 4.8 mile long, eastward trending side channel slough that feeds into the mainstem Columbia Slough about 1.1 miles downstream from the PWC Slough Sediment site. The subject site area was historically fed by upland areas that were originally open space and agriculturally-managed lands. Since the 1960s the upland area has grown increasingly urbanized with addition of industrial, light industrial and warehouse development. The stormwater outfalls, including the wastewater treatment discharge point from the PWC plant, were installed in the late 1960s. The site history for the upland source area (see ECSI #976) was provided to DEQ by the Portland Willamette Company. Prior to 1969 the upland site was agricultural land. The property was developed by the Portland Willamette Company in 1969 which performed electroplating of metal products. Electroplating has occurred at the site since that time but under several different company names and/or ownership. 1969 73: Portland Willamette Company 1973 94: Thomas Industries Inc. March 1994 to April 2002: Byers Industries Inc. April 2002 to May 2002: Wells Fargo Bank May 2002 to Present: Cardinal Aluminum Oregon, LLC For clarification, the business currently (Sept. 2005) operates under the business name Portland Willamette Company (PWC).

Administrative Action:
Action ID: 9440

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Region: Northwestern Region
Complete Date: 11/29/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/14/2007
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Letter Agreement
Further Action: 0
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 10/11/2005
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/16/2008
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: 0
Comments: Not reported

Action ID: 9520
Region: Northwestern Region
Complete Date: 11/29/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/29/2009
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: EXPANDED PRELIMINARY ASSESSMENT
Further Action: 0
Comments: Not reported

Action ID: 9470
Region: Northwestern Region
Complete Date: 12/01/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/01/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Other remedial or investigative action recommended
Further Action: 0
Comments: Not reported

Action ID: 9410
Region: Northwestern Region

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Complete Date: 09/29/2009
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/22/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Consent Decree
Further Action: 0
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/29/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9424
Region: Northwestern Region
Complete Date: 11/29/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 11/29/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 10/11/2005

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/03/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 10/11/2005
Rank Value: 91
Cleanup Flag: False
Created Date: 10/11/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: High
Comments: Not reported

Action ID: 9503
Region: Northwestern Region
Complete Date: 10/11/2005
Rank Value: 91
Cleanup Flag: False
Created Date: 10/11/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation/Feasibility Study recommended
Further Action: High
Comments: Not reported

Action ID: 9442
Region: Northwestern Region
Complete Date: 06/14/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/02/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 135120
Operation Status: Active
Common Name: Portland Willamette Company (Cardinal Aluminum OR)
Yrs of Operation: 1969-Present

PORTLAND WILLAMETTE CO. - SLOUGH SEDIMENTS (Continued) **S103842018**

Comments: Upland source of contaminated sediments in Whitaker Slough.
Updated Date: 10/11/2005
Updated By: CHARMAN
Decode for OpstatID: Active

50
West
1/4-1/2
0.259 mi.
1365 ft.

WASTE MANAGEMENT OF OREGON **OR SWF/LF** **S108663856**
7227 NE 55TH AVE **OR Financial Assurance** **N/A**
PORTLAND, OR 97218

Relative:
Lower

Actual:
13 ft.

LF:
Permit Number: 1294
Facility Id: 112037
Facility Telephone: 503/493-7879
Facility Telephone 2: Not reported
Lat/Long: 45.5762 / -122.6064
Solid Waste Class: Waste Tire
Solid Waste Type: Carrier
Date Opened: 11/01/1989
End Date: Not reported
Date Closed: Not reported
Permit Status: Active
Organization: Waste Management of Oregon
Contact Name: Margaret Valdez
Affil Start Date: 01/01/1989
Mailing Address: 7227 NE 55th Ave
Mailing City: Portland
Mailing State: OR
Mailing Zip: 97218-1215

OR Financial Assurance 2:
Facility Id: 112037
Region: 2
Permit Id: 1294
Instrument Class Name: Tire Handling
Comment: Not reported
Provider Name: McGriff Seibels & Williams of TX
Certified Date: 01/01/1989
Expiration Date: Not reported
Inst Type: Surety bond guaranteeing performance
Closure Cost Estimate: $5,000.00
Post Closure Cost Estimate: Not reported

I51
SW
1/4-1/2
0.302 mi.
1597 ft.

PORTLAND COMPOST FACILITY **OR SWF/LF** **S106918887**
SEC18,T1N,R2E **N/A**
MULTNOMAH (County), OR

Site 1 of 3 in cluster I

Relative:
Higher

Actual:
36 ft.

LF:
Permit Number: 404
Facility Id: 105042
Facility Telephone: Not reported
Facility Telephone 2: Not reported
Lat/Long: 45.5717 / -122.605

PORTLAND COMPOST FACILITY (Continued) **S106918887**

Solid Waste Class:	Compost
Solid Waste Type:	Full-Pre2009Rules
Date Opened:	11/03/1989
End Date:	11/15/1993
Date Closed:	02/14/1992
Permit Status:	Terminated
Organization:	Credit Suisse
Contact Name:	Not reported
Affil Start Date:	05/27/1992
Mailing Address:	12 E 49th St
Mailing City:	New York
Mailing State:	NY
Mailing Zip:	10017-1028

I52 **METRO METALS NORTHWEST, INC.** **WA SWRCY** **S114401620**
SW **5611 NE COLUMBIA BLVD** **N/A**
1/4-1/2 **PORTLAND, OR 97203**
0.307 mi.
1620 ft. **Site 2 of 3 in cluster I**

Relative: SWRCY:
Higher

Actual:
31 ft.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Wood burning stoves
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Appliances
Material Accepted:	Appliance, no cfcs
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861

METRO METALS NORTHWEST, INC. (Continued) **S114401620**

Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Appliances
Material Accepted:	Microwaves
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Appliances
Material Accepted:	Dishwashers
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Appliances
Material Accepted:	Waterheaters
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Electronics
Material Accepted:	Circuit boards
Contact Name:	Audrey English

METRO METALS NORTHWEST, INC. (Continued) **S114401620**

Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments: Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID: 946
Service: Metro Metals Northwest, Inc.
Phone: 503-287-8861
Extension: Not reported
Website: www.metrometalsnw.com
Email: info@metrometalsnw.com
Material Category: Electronics
Material Accepted: VCRs, DVD players
Contact Name: Audrey English
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments: Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID: 946
Service: Metro Metals Northwest, Inc.
Phone: 503-287-8861
Extension: Not reported
Website: www.metrometalsnw.com
Email: info@metrometalsnw.com
Material Category: Metals
Material Accepted: Aluminum cans
Contact Name: Audrey English
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments: Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID: 946
Service: Metro Metals Northwest, Inc.
Phone: 503-287-8861
Extension: Not reported
Website: www.metrometalsnw.com
Email: info@metrometalsnw.com
Material Category: Metals
Material Accepted: Aluminum foil
Contact Name: Audrey English
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments: Buys ferrous and non-ferrous scrap metal. Call for details. Provide

METRO METALS NORTHWEST, INC. (Continued) **S114401620**

pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Aluminum scrap
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Autobodies, RVs, trailers
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Brass
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported

METRO METALS NORTHWEST, INC. (Continued) **S114401620**

Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Copper
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Ferrous autoparts
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Ferrous scrap metal
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Lead
Contact Name:	Audrey English
Residential:	Yes

METRO METALS NORTHWEST, INC. (Continued) **S114401620**

Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Nonferrous autoparts
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Other metals
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Porcelain-coated castiron
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

METRO METALS NORTHWEST, INC. (Continued) **S114401620**

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Stainless steel
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Steel barrels
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Metals
Material Accepted:	Wire, ferrous, bare
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com

METRO METALS NORTHWEST, INC. (Continued) **S114401620**

Material Category:	Metals
Material Accepted:	Wire, insulated
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Miscellaneous
Material Accepted:	Photographic film & x-rays
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

Facility ID:	946
Service:	Metro Metals Northwest, Inc.
Phone:	503-287-8861
Extension:	Not reported
Website:	www.metrometalsnw.com
Email:	info@metrometalsnw.com
Material Category:	Paper
Material Accepted:	Corrugated cardboard
Contact Name:	Audrey English
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon-Fri 7:30am-4:30pm, Sat 7:30am-12pm
Comments:	Buys ferrous and non-ferrous scrap metal. Call for details. Provide pickup service for commercial customers.

I53 **METRO METALS NW INC** **OR CRL** **S108661214**
SW **5611 NE COLUMBIA BLVD** **OR ECSI** **N/A**
1/4-1/2 **PORTLAND, OR 97218** **OR AST**
0.307 mi. **OR VCP**
1620 ft. **Site 3 of 3 in cluster I** **OR SPILLS**
OR HSIS
Relative: Higher **OR NPDES**
OR UIC

Actual: 31 ft.

CRL:

Facility ID:	1015
Location ID:	15208
Status Code:	LIS

METRO METALS NW INC (Continued) **S108661214**

Facility Status: Other remedial or investigative action recommended
Lat/Long: 45.5719 / -122.6059

ECSI:
State ID Number: 1015
Brown ID: 0
Study Area: True
Region ID: 2
Legislatve ID: 837
Investigation: Listed on the CRL/Inventory
FACA ID: 15208
Further Action: 260
Lat/Long (dms): 45 34 18.00 / -122 36 21.00
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: Not reported
Tax Lots: Not reported
Size: 18 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 12/06/2007
Created Date: 02/08/1990
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Low
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Hazardous Substance Remedial Action Fund
Alias Name: GW - 55th & Columbia Area
Alias Name: Riedel Oregon Compost Co.
Alias Name: ROCCI Facility
Alias Name: RWDS Compost Facility
Alias Name: Winkler Scrap Metals

Hazardous Release:
Substance ID.: 121781
Haz Release ID: 385451
Qty Released: unknown
Date Released: unknown
Update Date: 08/08/1993
Update By: Not reported
Substance Code: 79-01-6
Substance Name: TRICHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study

METRO METALS NW INC (Continued) **S108661214**

Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317517
Sub Alias Name: ETHINYL TRICHLORIDE
Substance Alias ID: 317518
Sub Alias Name: ETHYLENE TRICHLORIDE
Substance Alias ID: 317519
Sub Alias Name: TCE
Substance Alias ID: 317520
Sub Alias Name: TRI-CLENE
Substance Alias ID: 317521
Sub Alias Name: TRICHLOROETHENE
Sampling Result ID: 346616
Feature Id: Not reported
Hazard Release Id: 385451
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 42 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121011
Haz Release ID: 384353
Qty Released: unknown
Date Released: unknown
Update Date: 08/08/1993
Update By: Not reported
Substance Code: 127-18-4
Substance Name: TETRACHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8519
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8551

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Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8519
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8551
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316912
Sub Alias Name: ETHENE,TETRACHLORO-
Substance Alias ID: 316913
Sub Alias Name: ETHYLENE TETRACHLORIDE
Substance Alias ID: 316914
Sub Alias Name: PERCHLOROETHYLENE
Substance Alias ID: 316915
Sub Alias Name: PERCLENE
Substance Alias ID: 316916
Sub Alias Name: TETRACHLOROETHENE
Substance Alias ID: 316917
Sub Alias Name: TETRACHLOROETHENE,1,1,2,2-
Substance Alias ID: 316918
Sub Alias Name: TETRACHLOROETHYLENE,1,1,2,2-
Sampling Result ID: 344721
Feature Id: Not reported
Hazard Release Id: 384353
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/08/1993
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 18 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121588
Haz Release ID: 384354
Qty Released: unknown
Date Released: unknown
Update Date: 05/14/1993
Update By: Not reported
Substance Code: 67-66-3
Substance Name: CHLOROFORM
Substance Abbrev.: Not reported
Substance Category ID: 8510

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Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8510
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319118
Sub Alias Name: METHANE,TRICHLORO-
Substance Alias ID: 319119
Sub Alias Name: TRICHLOROFORM
Substance Alias ID: 319120
Sub Alias Name: TRICHLOROMETHANE
Sampling Result ID: 344722
Feature Id: Not reported
Hazard Release Id: 384354
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/14/1993
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.6 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121124
Haz Release ID: 384355
Qty Released: unknown
Date Released: unknown
Update Date: 08/08/1993
Update By: Not reported
Substance Code: 156-59-2
Substance Name: DICHLOROETHYLENE,1,2-CIS-
Substance Abbrev.: Not reported
Substance Category ID: 8513
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8513
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317200
Sub Alias Name: ACETYLENE DICHLORIDE,CIS-
Substance Alias ID: 317201
Sub Alias Name: DICHLOROETHENE,CIS-

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Substance Alias ID: 317202
Sub Alias Name: DICHLOROETHYLENE,CIS-
Substance Alias ID: 317203
Sub Alias Name: DICHLOROETHENE,1,2-CIS-
Sampling Result ID: 344723
Feature Id: Not reported
Hazard Release Id: 384355
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/08/1993
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2.1 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Narrative:
NARR ID: 5739268
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (6/7/94 GMW/SAS) In 1989, Riedel Waste Disposal Systems purchased a largely undeveloped 18-acre property here, intending to construct a processing and composting facility for residential refuse. Riedel prepared an environmental assessment at this time, installing 10 monitoring wells. On- and off-site wells contained TCE and PCE, but no soil VOCs were found, and Riedel argued that the source of VOCs was off-site. After a review of hydrogeological data in 1989 and 1990, DEQ agreed and sent Riedel a <quot>no further action<quot> letter. At that time, DEQ established ECSI site #1015 as a regional groundwater site that needed further investigation to determine the source of chlorinated solvents. Riedel operated the compost facility between 1991 and 1992, after which the property transferred to Credit Suisse Bank. More recent groundwater sampling (summer 1993) showed TCE and PCE still to be present, along with very low levels of several other chlorinated solvents.

NARR ID: 5739269
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: 1) Environmental Site Assessment of RWDS Compost Facility Site (12/5/89). 2) ROCCI Dano Compost Facility -- Reply to DEQ Comments/Addendum to Final Site Assessment Report, Riedel (3/14/90). 3) Portland Compost Facility - Site Assessment Update, RTP

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Environmental Associates (5/24/93). 4) Subsurface Investigation, Former Portland Compost Facility, Hahn & Associates (10/19/93).

NARR ID: 5739270
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: chlorinated solvents

NARR ID: 5739271
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Location
NARR Comments: Between NE 55th & 57th avenues, on the north side of Columbia Blvd.

NARR ID: 5739272
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Source and time of release unknown; may have originated from off-site. Not reported

NARR ID: 5739273
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: The site is adjacent to the Columbia Slough.

NARR ID: 5739274
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (6/7/94 GMW/SAS) The plume of chlorinated solvents has remained fairly stable since 1989. The cis-1,2-DCE probably results from natural degradation of PCE and TCE. The highest concentrations of solvents have remained in the west-central portion of the site, and presumably downgradient wells have had much lower or nondetect levels of VOCs. Thus, it's unlikely that the VOC plume extends off-site towards the Columbia Slough. A 1990 SAS file review and site reconnaissance found no wells used for drinking water within 3 miles of the site. Because water-level data have shown changing groundwater flow patterns, more data is needed to establish groundwater flow and

METRO METALS NW INC (Continued) **S108661214**

contamination trends, and to confirm that subsurface contamination originated from a specific off-site location or direction. Site Assessment recommends further groundwater evaluation, under low priority. (11/14/97 LSK) Site reevaluated as part of review of all sites within the Columbia Slough Study Area. Area is south of the Whitaker Slough.

NARR ID: 5739275
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: groundwater contamination

Administrative Action:
Action ID: 9470
Region: Northwestern Region
Complete Date: 11/27/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Other remedial or investigative action recommended
Further Action: Low
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 11/27/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: 0
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

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Action ID: 9425
Region: Headquarters
Complete Date: 12/11/1989
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 12/11/1989
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Not reported
Comments: Not reported

Action ID: 9479
Region: Not reported
Complete Date: 03/15/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Further Investigation of Area Facilities recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9503
Region: Northwestern Region
Complete Date: 06/08/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation/Feasibility Study recommended
Further Action: Low
Comments: Not reported

Action ID: 9426

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Region: Northwestern Region
Complete Date: 06/07/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9439
Region: Headquarters
Complete Date: 11/19/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9499
Region: Not reported
Complete Date: 07/30/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9456
Region: Headquarters
Complete Date: 03/15/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Not reported

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Complete Date: 07/30/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Not reported
Complete Date: 06/14/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Not reported
Complete Date: 06/14/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Not reported
Complete Date: 07/30/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9448
Region: Not reported
Complete Date: 11/12/1991

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Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9488
Region: Not reported
Complete Date: 11/12/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing on Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9489
Region: Not reported
Complete Date: 11/12/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing on Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Headquarters
Complete Date: 11/19/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132322
Operation Status: Inactive
Common Name: Groundwater - 55th & Columbia
Yrs of Operation: 1991 - 1992

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Comments: abandoned compost facility
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Inactive
Operations SIC Id: 195805
SIC Code: 4953
Created By: Not reported
Created Date: 12/17/2002

State ID Number: 5455
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 111133
Further Action: 0
Lat/Long (dms): 45 34 13.40 / -122 36 23.80
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: Not reported
Tax Lots: 1400, 1300
Size: 23.2 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 06/03/2014
Created Date: 12/09/2010
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: Winkler Scrap Metals

Hazardous Release:
Substance ID.: 120909
Haz Release ID: 387973
Qty Released: Not reported
Date Released: Not reported
Update Date: 04/25/2012
Update By: SMILLER
Substance Code: 11097-69-1
Substance Name: PCB 1254
Substance Abbrev.: Not reported
Substance Category ID: 8556
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8556
Substance Category: PCB Substances for the OSPIRG Report

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Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316559
Sub Alias Name: AROCHLOR 1254
Substance Alias ID: 316560
Sub Alias Name: AROCLOR 1254
Sampling Result ID: 350420
Feature Id: 0
Hazard Release Id: 387973
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/09/2012
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 2,430ug/kg at sediment depth of 0-10cm. up to 324ug/kg at a sediment depth of 30-40cm.
Last Update By: SMILLER
Update Date: 04/25/2012
Decode for MediumID: Sediment

Substance ID.: 121673
Haz Release ID: 387974
Qty Released: Not reported
Date Released: Not reported
Update Date: 04/25/2012
Update By: SMILLER
Substance Code: 7440-50-8
Substance Name: COPPER
Substance Abbrev.: Not reported
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319296
Sub Alias Name: CU
Sampling Result ID: 350421
Feature Id: 0
Hazard Release Id: 387974
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True

METRO METALS NW INC (Continued) **S108661214**

Sample Depth: Not reported
Start Date: 02/09/2012
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 1,810mg/kg at a depth of 0-10cm
Last Update By: SMILLER
Update Date: 04/25/2012
Decode for MediumID: Sediment

Substance ID.: 121671
Haz Release ID: 387975
Qty Released: Not reported
Date Released: Not reported
Update Date: 04/25/2012
Update By: SMILLER
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 350422
Feature Id: 0
Hazard Release Id: 387975
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/09/2012
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 721mg/kg at a depth of 0-10cm
Last Update By: SMILLER
Update Date: 04/25/2012
Decode for MediumID: Sediment

Substance ID.: 121639
Haz Release ID: 387976
Qty Released: Not reported
Date Released: Not reported
Update Date: 04/25/2012

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Update By: SMILLER
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 350423
Feature Id: 0
Hazard Release Id: 387976
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/09/2012
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 1,700mg/kg at a depth of 0-10cm
Last Update By: SMILLER
Update Date: 04/25/2012
Decode for MediumID: Sediment

Substance ID.: 121679
Haz Release ID: 387977
Qty Released: Not reported
Date Released: Not reported
Update Date: 04/25/2012
Update By: SMILLER
Substance Code: 7440-66-6
Substance Name: ZINC
Substance Abbrev.: Not reported
Substance Alias ID: 319302
Sub Alias Name: ZN
Sampling Result ID: 350424
Feature Id: 0
Hazard Release Id: 387977
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/09/2012

METRO METALS NW INC (Continued) **S108661214**

End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 3,480mg/kg at a depth of 0-10cm
Last Update By: SMILLER
Update Date: 04/25/2012
Decode for MediumID: Sediment

Narrative:

NARR ID: 5755662
NARR Code: Site Contacts
Created By: SMILLER
Created Date: 04/27/2015
Updated By: SMILLER
Updated Date: 06/01/2017
Decode for NarcdID: Site Contacts
NARR Comments: Metro Metals: Kathy Balogh 503-287-8861 also Consultant: Micheal Pickering mpickering@maulfoster.com 503 501 5227 Adjacent Property Owner: Craig Moody, 503-201-3266 Paul and Linda Moody Trust % FISCHER & COMPANY - URI 9811 NE 114TH CIR Vancouver, WA 98662-1589

NARR ID: 5752598
NARR Code: Contamination
Created By: SMILLER
Created Date: 12/09/2010
Updated By: SMILLER
Updated Date: 12/09/2010
Decode for NarcdID: Contamination
NARR Comments: Metals

NARR ID: 5753229
NARR Code: Data Sources
Created By: SMILLER
Created Date: 05/26/2011
Updated By: SMILLER
Updated Date: 02/01/2016
Decode for NarcdID: Data Sources
NARR Comments: Stormwater Assessment Workplan Metro Metals ECSI#5455. Prepared by Ash Creek Associates, Inc. May 19, 2011. Draft Stormwater Assessment Metro Metals. Prepared by Ash Creek Associates Nov 21.2012. Feasibility Study E Whitaker Pond- Revised. Prepared by Apex February 3, 2015. Record of Decision. Prepared by DEQ. January 29, 2016.

NARR ID: 5756762
NARR Code: General Site Description
Created By: SMILLER
Created Date: 05/30/2017
Updated By: SMILLER
Updated Date: 05/30/2017
Decode for NarcdID: General Site Description
NARR Comments: [5/30/17 VCP/SAM] DEQ proposes to enter into a consent judgment with Metro Metals Northwest, Inc. The Consent Judgment outlines DEQ's oversight of remedial design and cleanup of East Whitaker Pond sediments and adjacent soil and wildlife habitat improvement. The consent judgment also includes settlement of Metro Metals' potential liability for contribution to sediment contamination in the Columbia Slough and satisfaction of liability associated with State of Oregon natural resource damages to Whitaker Ponds and the Columbia Slough.

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The selected remedial action consists of the following elements: - Excavation of sediment and soils with relatively higher concentrations of contaminants of concern. - Placement of activated carbon in areas with moderate PCB concentrations. - Placement of a thin-layer of clean substrate to enhance natural recovery in peripheral areas - Effectiveness Monitoring.

NARR ID: 5754732
NARR Code: Hazardous Substance/Waste Types
Created By: SMILLER
Created Date: 06/19/2013
Updated By: SMILLER
Updated Date: 06/19/2013
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: [6/18/13 SAM/ICP] Metals and PCBs

NARR ID: 5756764
NARR Code: Project Issues Summary
Created By: SMILLER
Created Date: 05/30/2017
Updated By: SMILLER
Updated Date: 05/30/2017
Decode for NarcdID: Project Issues Summary
NARR Comments: [5/30/17 VCP/SAM] DEQ proposes to enter into a consent judgment with Metro Metals Northwest, Inc. The Consent Judgment outlines DEQ's oversight of remedial design and cleanup of East Whitaker Pond sediments and adjacent soil and wildlife habitat improvement. The consent judgment also includes settlement of Metro Metals' potential liability for contribution to sediment contamination in the Columbia Slough and satisfaction of liability associated with State of Oregon natural resource damages to Whitaker Ponds and the Columbia Slough. The selected remedial action consists of the following elements: - Excavation of sediment and soils with relatively higher concentrations of contaminants of concern. - Placement of activated carbon in areas with moderate PCB concentrations. - Placement of a thin-layer of clean substrate to enhance natural recovery in peripheral areas - Effectiveness Monitoring.

NARR ID: 5752599
NARR Code: Pathways Other Hazards
Created By: SMILLER
Created Date: 12/09/2010
Updated By: SMILLER
Updated Date: 06/08/2016
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: [12/9/10 SAM/SA] Metro Metals discharges stormwater to the East Whitaker Ponds. High metal concentrations were found during routine stormwater sampling for their stormwater permit. In 2008 Metro Metals installed a stormwater treatment system, which appears to be working as designed based on COLS-1200 permit data, but sediments near the former discharge may contain elevated levels of metals or other pollutants from historic stormwater runoff.

NARR ID: 5753213
NARR Code: Remedial Action
Created By: SMILLER
Created Date: 05/23/2011

METRO METALS NW INC (Continued) **S108661214**

Updated By: SMILLER
Updated Date: 04/17/2018
Decode for NarcdID: Remedial Action
NARR Comments: [5/23/11 SAM/SA] Metro Metals submitted work plan to evaluate sediments near outfall in East Whitaker Pond. [7/12/11 SAM/ICP] DEQ approved work plan to evaluate sediments near outfall in East Whitaker Pond. This stormwater work plan also covers the former Coast Crane parcel ECSI #1225. [11/23/11 SAM/VCP] Metro Metals submitted data from sediment evaluation. The historical outfall(OF3) data indicates significant concentrations of metals and PCBs at the surface(0-10cm) and appears to decrease at depth(30cm). Next steps will evaluate extent of metals and PCBs. [12/6/12 SAM/VCP] Evaluation of extent of metals and PCBs in sediments underway. Metals appear to decrease with distance from outfall, however PCBs are still at concentrations of concern and additional sampling is planned. [4/30/2014 SAM/VCP] A streamlined Feasibility Study will be prepared to assess potential remedial actions for the contaminated sediment. [7/28/15 SAM/VCP] Metro Metals submitted a Revised Feasibility Study on February 5, 2015. The proposed alternative includes Partial Removal, Enhanced Monitored Natural Recovery, and Activated Carbon Amendment in selected areas East Whitaker Pond. [11/3/15 SAM/VCP] DEQ is proposing cleanup action for East Whitaker Pond. The proposed remedial action includes a combination of soil removal, dredging of contaminated sediments and placing a thin layer of clean material across the majority of the pond. In some locations, the clean material will include an activated carbon amendment. Confirmation sampling and long-term monitoring is proposed to evaluate the effectiveness. [2/1/16 SAM/VCP] Record of Deicsion(ROD) Completed 1/29/16. The selected remedial action consists of the following elements: Excavation of sediment and soils with relatively higher concentrations of contaminants of concern. Placement of activated carbon in areas with moderate PCB concentrations. Placement of a thin-layer of clean substrate to enhance natural recovery in peripheral areas Effectiveness Monitoring. Based on public input, the remedy was expanded to include addtional evaluation of sensitive species, clarification of removal extent and activated carbon placement. [6/8/16 SAM/VCP] DEQ currently negotiating a Consent Judgment with Metro Metals to continue with the remedial design and action phase of the project. [11/8/17 SAM/VCP] DEQ entered into a consent judgment with Metro Metals Northwest, Inc on October 5, 2017. The Consent Judgment outlines DEQ s oversight of remedial design and cleanup of East Whitaker Pond sediments and adjacent soil and wildlife habitat improvement. The consent judgment also includes settlement of Metro Metals potential liability for contribution to sediment contamination in the Columbia Slough and satisfaction of liability associated with State of Oregon natural resource damages to Whitaker Ponds and the Columbia Slough. [4/17/2018 VCP/SAM] DEQ approved the Final Remedial Design/Remedial Action Work Plan March 27, 2018.

NARR ID: 5753373
NARR Code: Site History
Created By: SMILLER
Created Date: 07/14/2011
Updated By: SMILLER
Updated Date: 06/08/2016
Decode for NarcdID: Site History

METRO METALS NW INC (Continued) **S108661214**

NARR Comments: [7/14/11 SAM/SA] This site was used for agricultural purposes until about 1990 when Riedel Environmental Services developed a processing and composting facility. MetroMetals, a scrap metal recycling facility, has operated on the site since 1992 and aquired the adjacent Coast Crane parcel(ECSI#1225) in 2006.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 12/09/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/09/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 05/19/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/09/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

Action ID: 9523
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/23/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SCD
Further Action: 0
Comments: Not reported

Action ID: 9429
Region: Northwestern Region
Complete Date: 02/03/2015
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/01/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action

METRO METALS NW INC (Continued) **S108661214**

Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: 0
Comments: Not reported

Action ID: 9494
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/01/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RECORD OF DECISION
Further Action: 0
Comments: Not reported

Action ID: 9473
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 11/08/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL DESIGN
Further Action: 0
Comments: Not reported

AST:
Facility Id: 009959
Hazardous Substance: CHEVRON CLARITY HYDRAULIC OIL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: VICTOR
Direct Site Phone: 5032878861
Report Class: Annual
Report Year: 2018
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 009959
Hazardous Substance: DIESEL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported

METRO METALS NW INC (Continued) **S108661214**

Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: VICTOR
Direct Site Phone: 5032878861
Report Class: Annual
Report Year: 2018
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 009959
Hazardous Substance: GASOLINE UNLEADED
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: VICTOR
Direct Site Phone: 5032878861
Report Class: Annual
Report Year: 2018
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 009959
Hazardous Substance: TRANSMISSION FLUID
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: VICTOR
Direct Site Phone: 5032878861
Report Class: Annual
Report Year: 2018
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 009959
Hazardous Substance: WASTE COOLANT
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: VICTOR

METRO METALS NW INC (Continued) **S108661214**

Direct Site Phone: 5032878861
Report Class: Annual
Report Year: 2018
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 009959
Hazardous Substance: WASTE CUTTING OIL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: VICTOR
Direct Site Phone: 5032878861
Report Class: Annual
Report Year: 2018
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 009959
Hazardous Substance: WASTE MOTOR OIL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: VICTOR
Direct Site Phone: 5032878861
Report Class: Annual
Report Year: 2018
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

VCS:
ECS Site ID: 5455
Facility Size: 23.2 acres
Action: REMEDIAL DESIGN
Start Date: 10/05/2017
End Date: Not reported
Facility Status: Active
Program: VCP
Latitude: 45.5704
Longitude: -122.6066

METRO METALS NW INC (Continued) **S108661214**

OR SPILLS:

Facility ID: 2016-0573
Incident Status: Closed
Material: Unknown
Quantity: Unknown
Unit of Measure: None
Release Date: 03/07/2016
Description: Haz Mat 7 responded to Titanium metal fire in NE Portland. Fire almost out but wanted DEQ notified because of fumes created.
Lat/Long: 45.57202 / -122.60585
Source: Business
Media: Soil, Air
Responsible Company: Metro Metals Northwest, Inc.
Responsible Address: 5611 NE Columbia Blvd.
Responsible City,St,Zip: Portland, OR 97218

Facility ID: 2009-0860
Incident Status: Archive
Material: Motor, bearing, propeller and other lubrication oils
Quantity: 165
Unit of Measure: Gallons
Release Date: 04/19/2009
Description: Metro metals reporting 165 gallon motor oil spill due to fire inside the facility. All fire suppression water and oil contained in stormwater storage and treatment system. Terra Hydra hired to cleanup and the responsible party is working with BES for sanitary sewer disposal options.
Lat/Long: 45.5704 / -122.6066
Source: Business
Media: Suspected, unknown, or no discharge
Responsible Company: Metro Metals Northwest
Responsible Address: 5611 NE Columbia Blvd
Responsible City,St,Zip: Portland, OR 97218-1237

Facility ID: 2009-0860
Incident Status: Archive
Material: Motor, bearing, propeller and other lubrication oils
Quantity: 165
Unit of Measure: Gallons
Release Date: 04/19/2009
Description: Metro metals reporting 165 gallon motor oil spill due to fire inside the facility. All fire suppression water and oil contained in stormwater storage and treatment system. Terra Hydra hired to cleanup and the responsible party is working with BES for sanitary sewer disposal options.
Lat/Long: 45.5704 / -122.6066
Source: Business
Media: On pavement/asphalt - not direct on soil
Responsible Company: Metro Metals Northwest
Responsible Address: 5611 NE Columbia Blvd
Responsible City,St,Zip: Portland, OR 97218-1237

HSIS:

Facility ID: 009959
Department Or Division Of Company: Not reported
Extremely Hazardous Substance: N

METRO METALS NW INC (Continued) **S108661214**

Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	423930
NAICS Desc 1:	RECYCLABLE MATERIAL WHSLE
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	VICTOR WINKLER
Business Phone:	5032878861
Mailing Address:	5611 NE COLUMBIA BLVD
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	125
Day Phone:	5032878861
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	MATT HASLETT
Emergency Procedure:	SAFETY MANAGERS OFFICE
Business Type:	SCRAP METAL
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

METRO METALS NW INC (Continued) **S108661214**

Facility:

Chemical Name:	GASOLINE UNLEADED
Physical Description:	LIQUID
Case Number:	000000
Facility Id:	009959
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	P
Temperature Description:	TANK WAGON
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1203
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	GASOLINE UNLEADED
United Nations/north America 4 Digit Class Number:	1203
Chemical Abstract Service Identifier Number:	000000
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

METRO METALS NW INC (Continued) **S108661214**

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	009959
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

METRO METALS NW INC (Continued) **S108661214**

Chemical Name:	PROPANE
Physical Description:	GAS
Case Number:	74986
Facility Id:	009959
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Chemical Abstract Service Identifier Number:	74986
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

METRO METALS NW INC (Continued) **S108661214**

Chemical Name:	WASTE CUTTING OIL
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	009959
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE CUTTING OIL
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

METRO METALS NW INC (Continued) **S108661214**

Chemical Name:	DIESEL
Physical Description:	LIQUID
Case Number:	68476346
Facility Id:	009959
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1202
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	DIESEL
United Nations/north America 4 Digit Class Number:	1202
Chemical Abstract Service Identifier Number:	68476346
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

METRO METALS NW INC (Continued) **S108661214**

NPDES:

WQ File Nbr:	108998
Legal Name:	METRO METALS NORTHWEST, INC.
Region:	Not reported
Pri SIC:	5093
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12R
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	108998
Legal Name:	METRO METALS NORTHWEST, INC.
Region:	NWR
Pri SIC:	5093
Facility Type:	SCRAP AND WASTE MATERIALS
Latitude:	45.5719
Longitude:	-122.6059
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR602156
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	08/01/2017
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	956841
Class:	MINOR
Start Date:	02/10/2000
Region Decode:	North West Region

OR UIC:

UIC Well #:	1
Type:	5W11
Type Description:	Septic Systems (undifferentiated Disposal Method)
Status:	Not a UIC (after investigation)

METRO METALS NW INC (Continued) **S108661214**

UIC Number: 13402
Facility Status: Not a UIC
Lat/Long: 45.570599 / -122.6061

54
West
1/4-1/2
0.312 mi.
1650 ft.

WASTE MANAGEMENT OF OREGON **OR LUST** **1000397431**
5330 NE SKYPORT WAY **OR UST** **N/A**
PORTLAND, OR 97218

Relative:
Lower

Actual:
13 ft.

LUST:
Region: North Western Region
Facility ID: 26-97-0700
Cleanup Received Date: 09/18/1997
Cleanup Start Date: 09/18/1997
Cleanup Complete Date: 04/21/2008
Decode for Region: North West Region

UST:
Facility ID: 7971
Facility Telephone: (503) 249-8078
Permittee Name: DON SIMMONS, OPERATIONS MANAGER
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 3
Number of Tanks: 3

55
SSW
1/4-1/2
0.336 mi.
1772 ft.

TOTAL RECLAIM **WA SWRCY** **S113831925**
6427 NE 59TH PL **N/A**
PORTLAND, OR 97218

Relative:
Higher

Actual:
43 ft.

SWRCY:
Facility ID: 2582
Service: Total Reclaim - Portland Location
Phone: 503-281-1899
Extension: Not reported
Website: http://www.totalreclaim.com/
Email: LaurelL@totalreclaim.com
Material Category: Electronics
Material Accepted: Cell phones
Contact Name: LaFata, Laurel
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: 8-4:30 M-F
Comments: Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID: 2582
Service: Total Reclaim - Portland Location

TOTAL RECLAIM (Continued) **S113831925**

Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Appliances
Material Accepted:	Dishwashers
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Batteries
Material Accepted:	Rechargeable batteries (from households*)
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Stereo equipment
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

TOTAL RECLAIM (Continued) **S113831925**

Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	VCRs, DVD players
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Batteries
Material Accepted:	Vehicle batteries (from households*)
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Batteries
Material Accepted:	Alkaline batteries (from households*)
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine

TOTAL RECLAIM (Continued) **S113831925**

refrigeration systems). They also offer certified destruction of hard drives.

Facility ID: 2582
Service: Total Reclaim - Portland Location
Phone: 503-281-1899
Extension: Not reported
Website: http://www.totalreclaim.com/
Email: LaurelL@totalreclaim.com
Material Category: Appliances
Material Accepted: Appliance, no cfcs
Contact Name: LaFata, Laurel
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: 8-4:30 M-F
Comments: Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID: 2582
Service: Total Reclaim - Portland Location
Phone: 503-281-1899
Extension: Not reported
Website: http://www.totalreclaim.com/
Email: LaurelL@totalreclaim.com
Material Category: Appliances
Material Accepted: Appliance, w/cfcs
Contact Name: LaFata, Laurel
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: 8-4:30 M-F
Comments: Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID: 2582
Service: Total Reclaim - Portland Location
Phone: 503-281-1899
Extension: Not reported
Website: http://www.totalreclaim.com/
Email: LaurelL@totalreclaim.com
Material Category: Electronics
Material Accepted: Circuit boards
Contact Name: LaFata, Laurel
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: 8-4:30 M-F

TOTAL RECLAIM (Continued) **S113831925**

Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Computers & Laptops
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Copiers
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Fax machines
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes

TOTAL RECLAIM (Continued) **S113831925**

Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Light Bulbs
Material Accepted:	CFLs only
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Keyboards
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Appliances
Material Accepted:	Microwaves

TOTAL RECLAIM (Continued) **S113831925**

Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Monitors
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Printers
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/

TOTAL RECLAIM (Continued) **S113831925**

Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Televisions
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Scanners
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Plastic
Material Accepted:	Foam packaging blocks
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Location

TOTAL RECLAIM (Continued) **S113831925**

Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Telephones
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Location
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Light Bulbs
Material Accepted:	Fluorescent lights, CFLs, HIDs
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Light Bulbs
Material Accepted:	Fluorescent lights, CFLs, HIDs
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

TOTAL RECLAIM (Continued) **S113831925**

Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Scanners
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Appliances
Material Accepted:	Appliance, no cfcs
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Appliances
Material Accepted:	Appliance, w/cfcs
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine

TOTAL RECLAIM (Continued) **S113831925**

refrigeration systems). They also offer certified destruction of hard drives.

Facility ID: 2582
Service: Total Reclaim - Portland Pickup
Phone: 503-281-1899
Extension: Not reported
Website: http://www.totalreclaim.com/
Email: LaurelL@totalreclaim.com
Material Category: Electronics
Material Accepted: Cell phones
Contact Name: LaFata, Laurel
Residential: Yes
Commercial: Yes
Service Type: Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant: No
Hours: 8-4:30 M-F
Comments: Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID: 2582
Service: Total Reclaim - Portland Pickup
Phone: 503-281-1899
Extension: Not reported
Website: http://www.totalreclaim.com/
Email: LaurelL@totalreclaim.com
Material Category: Electronics
Material Accepted: Circuit boards
Contact Name: LaFata, Laurel
Residential: Yes
Commercial: Yes
Service Type: Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant: No
Hours: 8-4:30 M-F
Comments: Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID: 2582
Service: Total Reclaim - Portland Pickup
Phone: 503-281-1899
Extension: Not reported
Website: http://www.totalreclaim.com/
Email: LaurelL@totalreclaim.com
Material Category: Electronics
Material Accepted: Computers & Laptops
Contact Name: LaFata, Laurel
Residential: Yes
Commercial: Yes
Service Type: Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant: No
Hours: 8-4:30 M-F

TOTAL RECLAIM (Continued) **S113831925**

Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Copiers
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Appliances
Material Accepted:	Dishwashers
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Fax machines
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes

TOTAL RECLAIM (Continued) **S113831925**

Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Light Bulbs
Material Accepted:	CFLs only
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Keyboards
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Monitors

TOTAL RECLAIM (Continued) **S113831925**

Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Printers
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Batteries
Material Accepted:	Rechargeable batteries (from households*)
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.
Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/

TOTAL RECLAIM (Continued) **S113831925**

Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Stereo equipment
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	Televisions
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Pickup
Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Electronics
Material Accepted:	VCRs, DVD players
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

Facility ID:	2582
Service:	Total Reclaim - Portland Pickup

TOTAL RECLAIM (Continued) **S113831925**

Phone:	503-281-1899
Extension:	Not reported
Website:	http://www.totalreclaim.com/
Email:	LaurelL@totalreclaim.com
Material Category:	Batteries
Material Accepted:	Vehicle batteries (from households*)
Contact Name:	LaFata, Laurel
Residential:	Yes
Commercial:	Yes
Service Type:	Pickup (may require commercial quantities, fee may be charged)
Light Recycle Participant:	No
Hours:	8-4:30 M-F
Comments:	Total Reclaim recycles anything with a battery or a cord, fluorescent bulbs and light fixtures, batteries, refrigerants (including HVAC units, air conditioners, industrial refrigeration equipment and marine refrigeration systems). They also offer certified destruction of hard drives.

J56 **SOIL CONTAMINATION - NE TRANSPORT WAY** **OR ECSI** **S103303316**
NNW **5700 NE TRANSPORT WAY** **OR CRL** **N/A**
1/4-1/2 **PORTLAND, OR 97218**
0.363 mi.
1916 ft. **Site 1 of 2 in cluster J**

Relative:
Lower

Actual:
13 ft.

ECSI:

State ID Number:	1065
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	832
Investigation:	Listed on the CRL/Inventory
FACA ID:	308
Further Action:	0
Lat/Long (dms):	45 35 5.30 / -122 36 18.00
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	7
Qtr Section:	Not reported
Tax Lots:	Not reported
Size:	Not reported
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	07/30/2007
Created Date:	01/09/1991
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Listed on the CRL/Inventory
Decode For Legislative:	Owner, operator or other party under state or federal authority
Alias Name:	Horizon Air - Portland International Airport

Hazardous Release:

SOIL CONTAMINATION - NE TRANSPORT WAY (Continued) **S103303316**

Substance ID.: 121981
Haz Release ID: 385522
Qty Released: unknown
Date Released: unknown
Update Date: 09/01/1991
Update By: Not reported
Substance Code: ECD168
Substance Name: BUNKER - FUEL OIL
Substance Abbrev.: Not reported
Substance Category ID: 8527
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8527
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Comment ID: 302643
Release Code: Data Sources
Release Comments: DEQ Emergency Response Form 10/15/90 Spencer Environmental Report 12/12/90
Decode for Relcomcd: Data Sources
Sampling Result ID: 346704
Feature Id: Not reported
Hazard Release Id: 385522
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: True
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: unknown
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:
NARR ID: 5726579
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (Matt McClincy 1/9/91) In October 1990, a surface spill of bunker fuel occurred at the Horizon Air facility (Portland International Airport). Horizon Air retained Spencer, Inc. to clean up the spill. During the removal, Spencer identified soil that it interpreted as contaminated with bunker fuel from past spills at the site. Cleanup of soils affected by the contemporaneous release was completed. Some of the soil impacted from past spills was also removed. At this time,

SOIL CONTAMINATION - NE TRANSPORT WAY (Continued) **S103303316**

DEQ is unaware of plans to remove the remaining contaminated soil at the site.

NARR ID: 5726580
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: DEQ NWR Emergency Response Form 10/15/90; Spencer Environmental Spill Report 12/12/90.

NARR ID: 5726581
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: bunker fuel (hydrocarbon)

NARR ID: 5726582
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Past spills similar to the release documented in the Spencer Environmental spill report. Time of release: unknown.

NARR ID: 5726583
NARR Code: Site Ownership
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Ownership
NARR Comments: Oregon Air National Guard, OPR, PRI,

NARR ID: 5726584
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Site topography: flat, soil is fill or alluvium. Site accessibility unknown. (DEQ Hazardous Substance Release Report, 1/9/91)

NARR ID: 5726585
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002

SOIL CONTAMINATION - NE TRANSPORT WAY (Continued) **S103303316**

Decode for NarcdID: Health Threats
NARR Comments: Soils at the site are contaminated with a hydrocarbon.

Administrative Action:
Action ID: 9496
Region: Headquarters
Complete Date: 01/09/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9448
Region: Not reported
Complete Date: 02/06/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Not reported
Complete Date: 07/23/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported

SOIL CONTAMINATION - NE TRANSPORT WAY (Continued) **S103303316**

Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 01/09/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Not reported
Complete Date: 01/09/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Not reported
Complete Date: 06/24/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Not reported
Complete Date: 01/09/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

SOIL CONTAMINATION - NE TRANSPORT WAY (Continued) **S103303316**

Action ID: 9488
Region: Not reported
Complete Date: 02/06/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing on Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Not reported
Complete Date: 02/07/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132376
Operation Status: Unknown
Common Name: Soil Contamination - NE Transport WAY
Yrs of Operation: Not reported
Comments: Not reported
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Unknown

CRL:
Facility ID: 1065
Location ID: 308
Status Code: LIS
Facility Status: State Basic Preliminary Assessment recommended (PA)
Lat/Long: 45.5848 / -122.605

57
East
1/4-1/2
0.365 mi.
1929 ft.

COLWOOD NATIONAL GOLF COURSE- NORTH **OR ECSI** **S116734836**
7007 NE CORNFOOT RD. **OR VCP** **N/A**
PORTLAND, OR 97218 **OR BROWNFIELDS**

Relative:
Lower

Actual:
16 ft.

ECSI:
State ID Number: 5890
Brown ID: Brownfield Site - DEQ Tech Assistance
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: No Further Action

COLWOOD NATIONAL GOLF COURSE- NORTH (Continued) **S116734836**

FACA ID: 131665
Further Action: 0
Lat/Long (dms): 45 34 25.00 / -122 35 8.50
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 17
Qtr Section: Not reported
Tax Lots: 100, 1000
Size: 47 acres
NPL: False
Orphan: False
Updated By: SMILLER
Update Date: 10/26/2017
Created Date: 04/08/2014
Decode For RegionID: Northwest Region
Decode For BrownID: Brownfield Site - DEQ Technical Assistance
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Not reported
Alias Name: 7007 NE Cornfoot Rd. Portland, OR 97218
Alias Name: 7313 NE Columbia Blvd. Portland, OR 97218

Narrative:
NARR ID: 5755079
NARR Code: Data Sources
Created By: SMILLER
Created Date: 04/09/2014
Updated By: SMILLER
Updated Date: 07/13/2017
Decode for NarcdID: Data Sources
NARR Comments: Colwood National Golf Course N of NE Cornfoot Rd: Phase I Environmental Site Assessment. Prepared by Maul Foster and Alongi. October 2013. Memorandum: Colwood Industrial Park Imported Fill Removal Observation & Confirmation Soil Sampling. Preapred by GeoDesign. 2/4/2016. Construction Completion Report. Prepared by Trammell Crow. 11/2/2016.

NARR ID: 5755088
NARR Code: General Site Description
Created By: SMILLER
Created Date: 04/21/2014
Updated By: SMILLER
Updated Date: 04/21/2014
Decode for NarcdID: General Site Description
NARR Comments: The northern section of Colwood Golf Course(north of Cornfoot Rd) is being reviewed by DEQ as a part of a prospective purchaser agreement.

NARR ID: 5755078
NARR Code: Remedial Action
Created By: SMILLER
Created Date: 04/08/2014
Updated By: SMILLER
Updated Date: 10/26/2017

COLWOOD NATIONAL GOLF COURSE- NORTH (Continued) **S116734836**

Decode for NarcdID: Remedial Action
NARR Comments: [4/8/2014 SA/SAM] The northern section of Colwood Golf Course(north of Cornfoot Rd) is being reviewed by DEQ as a part of a prospective purchaser agreement. [4/18/2014 SA/SAM] A phase I environmental site assessment found two recognized environmental concerns: 1- the use of fungicides, herbicides and pesticides may have impacted soils on property and off-site sediments in McBride and Columbia Sloughs. 2-a shallow infiltration pipe along fairway 13 should be removed or registered as a underground injection control with DEQ. Shallow soil samples were collected in 2006-pesticides/herbicides were not detected above analytical reporting limits. Metals were consistant with background concentrations, except for one mercury sample(0.9mg/kg vs background at 0.2mg/kg). A sediment sample was collected in the onsite pond. Metals were consistant with background. pesticides and herbicides were not detected above method reporting limits except for 4,4 DDE at 27ug/kg. [10/30/14 SA/SAM] Previous sediment samples collected in the McBride Slough[ECSI#5676] were above risk-based screening levels for pesticides and metals. The sampling did not determine the source of the contaminants, but it is possible that golf course maintenance activities have contributed to contamination in McBride Slough and similarly may have contributed to contamination in the Columbia Slough to the south. Trammell Crow Portland Development, Inc. has agreed to: make a contribution to the Columbia Slough sediment investigation and remediation cleanup fund; prepare and comply with a contaminated media management plan for construction activities on the property; and conduct appropriate building/infrastructure demolition, abandonment, removal and disposal per county, state and federal guidelines for septic systems, wells and asbestos containing materials. and conveyance of parcel 2(approximately 2 acres) to the Port of Portland. The consent judgment will provide Trammell Crow Portland Development, Inc. with a release from liability for claims by the State of Oregon under state law regarding existing hazardous substance releases at or from the property. The consent judgment will also provide Trammell Crow Portland Development, Inc. with third party liability protection. [8/22/16 ICP/SAM] DEQ signed and recieved a notice of transfer from Trammell Crow to US Postal Service on August 16, 2016. The USPS will continue to comply with the terms of the PPA. [7/13/17ICP/SAM] DEQ is preparing to certify that all actions required have been satisfactorily completed. This project has resulted in both environmental and economic benefits. Tramell Crow prepared a construction completion report in October 2016. Trammel Crow contributed to DEQ s Columbia Slough remediation account on December 15, 2014 and transferred Parcel 2 to Port of Portland on October 17, 2014. A draft staff report also proposes the redevelopment work meets the objectives for No Further Action. 10/26/17 No public comments recieved on staff report; NFA and Certificate of Completion issued.

NARR ID: 5755087
NARR Code: Site History
Created By: SMILLER
Created Date: 04/21/2014
Updated By: SMILLER
Updated Date: 04/21/2014
Decode for NarcdID: Site History
NARR Comments: The applicant proposes to develop the property for general industrial uses consistent with City of Portland zoning requirements. The

COLWOOD NATIONAL GOLF COURSE- NORTH (Continued) **S116734836**

property has been in use as a golf course, known as the Colwood National Golf Course, since about 1930. Prior to development as a golf course, the property was in agricultural use.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 04/08/2014
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/08/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9464
Region: Northwestern Region
Complete Date: 10/17/2014
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/28/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Prospective Purchaser Agreement
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 10/26/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/26/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

VCS:
ECS Site ID: 5890
Facility Size: 47 acres
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 10/26/2017
End Date: 10/26/2017
Facility Status: Completed
Program: VCP
Latitude: 45.5736
Longitude: -122.5857

COLWOOD NATIONAL GOLF COURSE- NORTH (Continued) **S116734836**

OR BROWNFIELDS:
Geolocation Id: 131665
Status: NO FURTHER STATE ACTION REQUIRED
Lat/Long: 45.5736 / -122.585

J58 **HEATING OIL TANK** **OR LUST** **S103839107**
NW **5580 NE TRANPORT WAY** **N/A**
1/4-1/2 **PORTLAND, OR 97208**
0.372 mi.
1964 ft. **Site 2 of 2 in cluster J**

Relative:
Lower

Actual:
13 ft.

LUST:
Region: North Western Region
Facility ID: 26-99-0232
Cleanup Received Date: 03/12/1999
Cleanup Start Date: 03/12/1999
Cleanup Complete Date: Not reported
Decode for Region: North West Region

K59 **NORTHSIDE FORD TRUCK SALES, INC.** **RCRA-CESQG** **1000410191**
South **6221 NORTHEAST COLUMBIA BOULEVARD** **OR LUST** **ORD061483046**
1/4-1/2 **PORTLAND, OR 97218** **OR UST**
0.386 mi. **OR AST**
2039 ft. **Site 1 of 2 in cluster K** **FINDS**
ECHO

Relative:
Higher

OR HSIS
OR UIC

Actual:
50 ft.

RCRA-CESQG:
Date form received by agency: 12/31/2003
Facility name: NORTHSIDE TRUCKS AND EQUIPMENT
Facility address: 6221 NE COLUMBIA BLVD
PORTLAND, OR 97218
EPA ID: ORD061483046
Mailing address: PO BOX 55010
PORTLAND, OR 97238-5010
Contact: JAMES F MCDONOUGH
Contact address: PO BOX 55010
PORTLAND, OR 97238
Contact country: US
Contact telephone: 503-282-7777
Contact email: Not reported
EPA Region: 10
Land type: Private
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	NORTHSIDE FORD TRUCK SALES
Owner/operator address:	PO BOX 55010 PORTLAND, OR 97238
Owner/operator country:	US
Owner/operator telephone:	503-282-7777
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	08/13/1986
Owner/Op end date:	Not reported

Owner/operator name:	NORTHSIDE FORD TRUCK SALES
Owner/operator address:	6221 NE COLUMBIA BOULEVARD PORTLAND, OR 97218
Owner/operator country:	US
Owner/operator telephone:	503-282-7773
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	12/31/2003
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

. Waste code:	NA
. Waste name:	NA

Historical Generators:

Date form received by agency:	01/02/2003
Site name:	NORTHSIDE TRUCKS AND EQUIPMENT
Classification:	Conditionally Exempt Small Quantity Generator

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Date form received by agency: 01/11/2002
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/09/2001
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 03/16/2000
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/03/1999
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 05/21/1998
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/23/1997
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Small Quantity Generator

Date form received by agency: 02/23/1996
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Small Quantity Generator

Date form received by agency: 03/01/1995
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/25/1994
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/16/1993
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Small Quantity Generator

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F006
. Waste name: WASTEWATER TREATMENT SLUDGES FROM ELECTROPLATING OPERATIONS EXCEPT FROM THE FOLLOWING PROCESSES: (1) SULFURIC ACID ANODIZING OF ALUMINUM; (2) TIN PLATING ON CARBON STEEL; (3) ZINC PLATING (SEGREGATED BASIS) ON CARBON STEEL; (4) ALUMINUM OR ZINC-ALUMINUM PLATING ON CARBON STEEL; (5) CLEANING/STRIPPING ASSOCIATED WITH TIN, ZINC AND ALUMINUM PLATING ON CARBON STEEL; AND (6) CHEMICAL ETCHING AND MILLING OF ALUMINUM.

Date form received by agency: 03/05/1992
Site name: NORTHSIDE TRUCKS AND EQUIPMENT
Classification: Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 05/12/1997
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

LUST:
Region: North Western Region
Facility ID: 26-09-1264
Cleanup Received Date: 12/14/2009
Cleanup Start Date: 01/11/2010
Cleanup Complete Date: 02/24/2010
Decode for Region: North West Region

UST:
Facility ID: 10309
Facility Telephone: (503) 282-7773
Permittee Name: J PAUL SAVAGE
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 1
Number of Tanks: 1

AST:
Facility Id: 037505
Hazardous Substance: MOTOR OIL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JIM
Direct Site Phone: 5032827777
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 037505
Hazardous Substance: WASTE OIL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JIM
Direct Site Phone: 5032827777
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

FINDS:

Registry ID: 110014225267

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid: 1000410191
Registry ID: 110014225267
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110014225267

HSIS:

Facility ID: 037505
Department Or Division Of Company: Not reported
Extremely Hazardous Substance: Y

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	441110
NAICS Desc 1:	NEW CAR DEALERS
NAICS Code 2:	441120
NAICS Desc 2:	USED CAR DEALERS
Manager Name:	JIM MCDONOUGH
Business Phone:	5032827777
Mailing Address:	PO BOX 55010
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	972385010
No. of Employees:	72
Day Phone:	5032827777
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	ADAM MCDONOUGH
Emergency Procedure:	SHOP OFFICE
Business Type:	AUTOMOTIVE REPAIR SHOP
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Facility:

Chemical Name:	FREON 134A
Physical Description:	LIQUID
Case Number:	811972
Facility Id:	037505
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	1,1,1,2-TETRAFLUOROETHANE
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	FREON 134A
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	811972
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Chemical Name:	MOTOR OIL
Physical Description:	LIQUID
Case Number:	64742547
Facility Id:	037505
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	MOTOR OIL
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	64742547
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	N
Pesticide:	N
Contains 313:	Not reported

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	037505
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Chemical Name:	ARGON
Physical Description:	GAS
Case Number:	7440371
Facility Id:	037505
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1006
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON
United Nations/north America 4 Digit Class Number:	1006
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Chemical Name:	WASTE LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	7664939
Facility Id:	037505
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	7664939
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Y
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Y

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Chemical Name:	WASTE OIL
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	037505
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	C
Description:	TANK INSIDE BUILDING
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE OIL
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Chemical Name:	AUTOMATIC TRANSMISSION FLUID
Physical Description:	LIQUID
Case Number:	000000
Facility Id:	037505
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	HIGHLY REFINED PETROLEUM OILS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Combustible Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.5
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	AUTOMATIC TRANSMISSION FLUID
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	000000
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Combustible Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.5
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	037505
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	037505
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Chemical Abstract Service Identifier Number:	74862
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

OR UIC:
UIC Well #: 1
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Active
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 2
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Active
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 3
Type: 5X28
Type Description: Motor Vehicle Waste Disposal Wells
Status: Abandoned w/o Authority
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 4
Type: 5X28
Type Description: Motor Vehicle Waste Disposal Wells
Status: Abandoned w/o Authority
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 5
Type: 5X28
Type Description: Motor Vehicle Waste Disposal Wells
Status: Abandoned w/o Authority
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 6
Type: 5X28
Type Description: Motor Vehicle Waste Disposal Wells
Status: Abandoned w/o Authority
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 7
Type: 5X28
Type Description: Motor Vehicle Waste Disposal Wells
Status: Abandoned w/o Authority
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

UIC Well #: 8
Type: 5W20
Type Description: Industrial Process Water And Waste Disposal
Status: Not a UIC (after investigation)
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 9
Type: 5X28
Type Description: Motor Vehicle Waste Disposal Wells
Status: Not a UIC (after investigation)
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 10
Type: 5W10
Type Description: Cesspools
Status: Abandoned w/o Authority
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 11
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 12
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 13
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 14
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 15

NORTHSIDE FORD TRUCK SALES, INC. (Continued) **1000410191**

Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

UIC Well #: 16
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 11211
Facility Status: Registered & RA
Lat/Long: 45.569599 / -122.5992

60
NNW
1/4-1/2
0.401 mi.
2115 ft.

OREGON NATIONAL GUARD DUMP SITE **SEMS-ARCHIVE** **1003880450**
PORTLAND AIRPORT **ORD981770316**
PORTLAND, OR 97220

Relative:
Lower

Actual:
13 ft.

SEMS Archive:
Site ID: 1000964
EPA ID: ORD981770316
Cong District: 03
FIPS Code: 41051
FF: N
NPL: Not on the NPL
Non NPL Status: NFRAP-Site does not qualify for the NPL based on existing information
Latitude: 45.583333
Longitude: -122.601667

SEMS Archive Detail:
Region: 10
Site ID: 1000964
EPA ID: ORD981770316
Site Name: OREGON NATIONAL GUARD DUMP SITE
NPL: N
FF: N
OU: 00
Action Code: VS
Action Name: ARCH SITE
SEQ: 1
Start Date: Not reported
Finish Date: 1989-10-02 04:00:00
Qual: Not reported
Current Action Lead: EPA Perf In-Hse

Region: 10
Site ID: 1000964
EPA ID: ORD981770316
Site Name: OREGON NATIONAL GUARD DUMP SITE
NPL: N
FF: N
OU: 00
Action Code: SI
Action Name: SI
SEQ: 1

OREGON NATIONAL GUARD DUMP SITE (Continued) **1003880450**

Start Date:	1989-10-02 04:00:00
Finish Date:	1989-10-02 04:00:00
Qual:	N
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000964
EPA ID:	ORD981770316
Site Name:	OREGON NATIONAL GUARD DUMP SITE
NPL:	N
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	1987-10-16 04:00:00
Finish Date:	1987-10-16 04:00:00
Qual:	Not reported
Current Action Lead:	Other
Region:	10
Site ID:	1000964
EPA ID:	ORD981770316
Site Name:	OREGON NATIONAL GUARD DUMP SITE
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	1988-12-27 05:00:00
Finish Date:	1988-12-27 05:00:00
Qual:	H
Current Action Lead:	St Perf

K61 **HARRISON PROPERTY** **OR LUST** **U000432979**
South **6100 NE COLUMBIA BLVD** **OR UST** **N/A**
1/4-1/2 **PORTLAND, OR 97218**
0.403 mi.
2130 ft. **Site 2 of 2 in cluster K**

Relative:
Higher

Actual:
50 ft.

LUST:

Region:	North Western Region
Facility ID:	26-90-0372
Cleanup Received Date:	10/10/1990
Cleanup Start Date:	09/29/1990
Cleanup Complete Date:	**01/23/1991**
Decode for Region:	**North West Region**

UST:

Facility ID:	10557
Facility Telephone:	(503) 581-4678
Permittee Name:	MS NANCY HARRISON
Number of Permitted Tanks:	Not reported
Active Tanks:	Not reported
Decommissioned Tanks:	5

HARRISON PROPERTY (Continued) **U000432979**

Number of Tanks: 5

L62
South
1/4-1/2
0.407 mi.
2148 ft.

SONSRAY MACHINERY LLC **OR LUST** **1000473656**
6455 NE COLUMBIA BLVD **OR UST** **N/A**
PORTLAND, OR 97218 **OR AST**
OR HSIS

Site 1 of 3 in cluster L

Relative:
Higher

Actual:
71 ft.

LUST:

Region:	North Western Region
Facility ID:	26-99-1306
Cleanup Received Date:	11/19/1999
Cleanup Start Date:	11/19/1999
Cleanup Complete Date:	**11/20/2002**
Decode for Region:	**North West Region**

UST:

Facility ID:	4743
Facility Telephone:	(503) 282-7211
Permittee Name:	NORMAN E HOBBS, MANAGER
Number of Permitted Tanks:	Not reported
Active Tanks:	Not reported
Decommissioned Tanks:	6
Number of Tanks:	6

AST:

Facility Id:	019640
Hazardous Substance:	DIESEL FUEL
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported
Storage 1:	Above ground tank
County:	MULTNOMAH
Owner-Operator Name:	MATHEW
Direct Site Phone:	5032832461
Report Class:	Annual
Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No
Is Biological Hazard:	No
Is Radioactive Material:	No
Is Explosive:	No
Status:	Not reported

Facility Id:	019640
Hazardous Substance:	WASTE OIL
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported
Storage 1:	Above ground tank
County:	MULTNOMAH
Owner-Operator Name:	MATHEW
Direct Site Phone:	5032832461
Report Class:	Annual
Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No

SONSRAY MACHINERY LLC (Continued) **1000473656**

Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

HSIS:

Facility ID:	019640
Department Or Division Of Company:	SERVICE-PARTS DEPT
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	N
Contains 112R:	N
NAICS Code 1:	423810
NAICS Desc 1:	CONST & MINING (EXC OIL WELL) MACHINERY &
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	MATHEW HOELSCHER
Business Phone:	5032832461
Mailing Address:	6455 NE COLUMBIA BLVD
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	19
Day Phone:	5032832461
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	THAYNE HYMAS
Emergency Procedure:	BY W EXIT & SVC SHOP
Business Type:	HEAVY EQUIPMENT SALES & SERVICE
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported

SONSRAY MACHINERY LLC (Continued) **1000473656**

NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	MOTOR OIL
Physical Description:	LIQUID
Case Number:	64742547
Facility Id:	019640
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	N
Temperature Description:	PLASTIC BOTTLE, JUG, BUCKET
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	MOTOR OIL
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	64742547
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4

SONSRAY MACHINERY LLC (Continued) **1000473656**

Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	N
Pesticide:	N
Contains 313:	Not reported

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	019640
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2

SONSRAY MACHINERY LLC (Continued) **1000473656**

Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	WASTE OIL
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	019640
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE OIL
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4

SONSRAY MACHINERY LLC (Continued) **1000473656**

Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	CARBON DIOXIDE/ARGON MIX
Physical Description:	GAS
Case Number:	124389
Facility Id:	019640
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	CARBON DIOXIDE/ARGON MIX
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	124389
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2

SONSRAY MACHINERY LLC (Continued) **1000473656**

Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	019640
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	DIESEL FUEL
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	0068334305
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3

SONSRAY MACHINERY LLC (Continued) **1000473656**

Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	019640
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Chemical Abstract Service Identifier Number:	74862
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4

SONSRAY MACHINERY LLC (Continued) **1000473656**

Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

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63 **ATLAS TOWING** **OR ECSI S116734846**
WSW **5327 NE COLUMBIA BLVD.** **OR VCP N/A**
1/4-1/2 **PORTLAND, OR 97218**
0.425 mi.
2245 ft.

Relative:
Higher

Actual:
36 ft.

ECSI:

State ID Number:	5903
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	132192
Further Action:	258
Lat/Long (dms):	45 34 11.30 / -122 36 28.40
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	18
Qtr Section:	A
Tax Lots:	1900
Size:	1.95 acres
NPL:	False
Orphan:	False
Updated By:	HNELSON
Update Date:	02/14/2018
Created Date:	06/11/2014
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Medium
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported
Alias Name:	Alpha Motors

Narrative:

NARR ID:	5755175
NARR Code:	Site Contacts
Created By:	SMILLER
Created Date:	06/11/2014
Updated By:	SMILLER
Updated Date:	10/10/2014
Decode for NarcdID:	Site Contacts

ATLAS TOWING (Continued) **S116734846**

NARR Comments: Owner: Randy Slipher 3415 NE 124th Pl Portland, OR 97218 Operator: Alpha Motor Russ Kunden (503) 888-4918 Multiple unknown Operators at site behind Alpha Motors... also 3 rental units on site. two structures and one moble home.

NARR ID: 5755174
NARR Code: Contamination
Created By: SMILLER
Created Date: 06/11/2014
Updated By: SMILLER
Updated Date: 10/10/2014
Decode for NarcdID: Contamination
NARR Comments: [6/11/14 SA/SAM] Unknown. potentially metals, PAHs, PCBs and other substances associated with salvage operations.

NARR ID: 5755349
NARR Code: General Site Description
Created By: SMILLER
Created Date: 10/10/2014
Updated By: SMILLER
Updated Date: 10/10/2014
Decode for NarcdID: General Site Description
NARR Comments: [6/11/14 SA/SAM] Site adjacent to Whitaker Ponds a part of Columbia Slough system a water body with known sediment contamination issues that is under a total maximum daily load (TMDL) to address toxics and other water quality pollutants. Aerial photographs indicate a auto storage/salvage yard is present and industrial activites have occured at least since 2006.

NARR ID: 5755368
NARR Code: Pathways Other Hazards
Created By: SMILLER
Created Date: 10/21/2014
Updated By: SMILLER
Updated Date: 10/21/2014
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: [10/21/14 SA/SAM] a ditch runs along the northern property boundary under heavy blackberries and may extend to the Moody property to the east (ECSI#4587). The end discharge location was not visible due to the heavy blackberry brush, but possibly flows towards the East Whitaker Pond.

NARR ID: 5755173
NARR Code: Remedial Action
Created By: SMILLER
Created Date: 06/11/2014
Updated By: SMILLER
Updated Date: 06/11/2014
Decode for NarcdID: Remedial Action
NARR Comments: [6/11/14 SA/SAM]Site evaluation recommended, to determine if activities have caused a release of hazardous substances that pose a threat to human health and the environment, especially to the Whitaker Slough area.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 06/11/2014

ATLAS TOWING (Continued) **S116734846**

Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/11/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 06/11/2014
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/11/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 02/12/2018
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/08/2018
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/13/2018
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Medium
Comments: Not reported

VCS:
ECS Site ID: 5903
Facility Size: 1.95 acres
Action: SITE EVALUATION

ATLAS TOWING (Continued) **S116734846**

Start Date: 02/12/2018
End Date: Not reported
Facility Status: Active
Program: ICP
Latitude: 45.5698
Longitude: -122.6079

64
SW
1/4-1/2
0.433 mi.
2284 ft.

SPARKS-WAGNER INC
5601 NE COLUMBIA BLVD
PORTLAND, OR 97218

OR ECSI **U000433007**
OR LUST **N/A**
OR UST
OR AST
OR HSIS

Relative:
Higher

Actual:
51 ft.

ECSI:
State ID Number: 1225
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 831
Investigation: Suspect
FACA ID: 3781
Further Action: 260
Lat/Long (dms): 45 34 11.30 / -122 36 18.00
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: A
Tax Lots: 1300 (T1N/R2E-S18A)
Size: 5.58 acres
NPL: False
Orphan: False
Updated By: SFORTUN
Update Date: 09/30/2011
Created Date: 08/05/1992
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Low
Decode For Investstat: Suspect
Decode For Legislative: Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420
Alias Name: Riedel - Meco Site

Hazardous Release:
Substance ID.: 121996
Haz Release ID: 383703
Qty Released: unknown
Date Released: unknown
Update Date: 09/26/1991
Update By: Not reported
Substance Code: ECD228
Substance Name: PETROLEUM HYDROCARBONS
Substance Abbrev.: Not reported
Substance Category ID: 8534

SPARKS-WAGNER INC (Continued) **U000433007**

Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8534
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 344717
Feature Id: Not reported
Hazard Release Id: 383703
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 12/28/1993
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2,800 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:
NARR ID: 5732276
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (11/91 MJM/VCS) In the past, the Riedel - MECO site has been primarily used by owners of heavy equipment dealerships. Soil sampling conducted by Riedel Environmental Serivces (RES), for geotechnical purposes, identified oil and diesel contamination in the northwestern portion of the MECO site. According to interviews conducted by Riedel, it is believed that a large amount of fill material was deposited in this area over the years. During 12/90, RES soil excavation identified 2 distinct levels of contamination. The upper level consisted of an oiled rocky subgrade from the surface to a depth of 5 feet. From 5 feet to 17 feet, buried equipment debris and oil were present. RES removed all contaminated soil below the 5 foot level. Groundwater entered the excavation at 17 feet. Prior to excavation, a water sample taken from a previously existing monitoring well on the north margin of the excavation did not contain petroleum hydrocarbons. However, it was not specifically designed to detect groundwater impacts from the petroleum hydrocarbon contaminants present in the soil.

NARR ID: 5732277
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002

SPARKS-WAGNER INC (Continued) **U000433007**

Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: 1) Voluntary Cleanup Program file for Riedel/MECO. 2) Documentation of Hydrocarbon Contaminated Soil Cleanup and Sample Results at the MECO Site, Riedel (2/21/91). 3) Portland Compost Facility - Site Assessment Update, RTP Environmental Associates (5/24/93). 4) Subsurface Investigation, Former Portland Compost Facility, Hahn & Associates (10/19/93). 5) Environmental Assessment Report, Coast Crane & Equipment, HartCrowser (12/22/93). 6) Additional Environmental Assessment Report, Coast Crane & Equipment, HartCrowser (1/11/94).

NARR ID: 5732278
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: petroleum hydrocarbons

NARR ID: 5732279
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Oil and grease contaminated soil may have resulted from past spills related to heavy equipment repair, and from the placement of contaminated fill.

NARR ID: 5732280
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Regional flow of shallow groundwater is generally to the north in the site vicinity.

NARR ID: 5732281
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: SMILLER
Updated Date: 04/25/2012
Decode for NarcdID: Remedial Action
NARR Comments: (11/91 MJM/VCS) Riedel entered into a letter agreement with VCS 3/91 to review the hydrocarbon contaminated soil removal and to identify additional site work that might be needed. Several project issues then led to the site being placed on hold by VCS, and project closeout was completed 12/31/92. (6/7/94 GMW/SAS) Riedel removed most of the deeper hydrocarbon contamination in 1990. As a result, this is a low priority for further assessment and remediation. SAS recommends

SPARKS-WAGNER INC (Continued) **U000433007**

that the property owner of the former MECO site sample well #10 on a regular basis to ensure that heavy hydrocarbons remaining in the soil are not migrating into groundwater. (11/12/97 LSK) Site reevaluated as part of review of all sites within the Columbia Slough Study Area. Located south of Whitaker Slough. [5/26/11 SAM/SA] Metro Metals Northwest is completing a stormwater outfall sediment assessment, which includes this property. See ECSI#5455 for more information.

NARR ID: 5732282
NARR Code: Substances of Concern
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Substances of Concern
NARR Comments: petroleum hydrocarbons

NARR ID: 5732283
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: (6/7/94 GMW/SAS) Residual hydrocarbon contamination in the northwest portion of the former MECO site exceeds DEQ's matrix cleanup level of 500 ppm in some areas. These shallow hydrocarbons may have resulted from parking lot oiling, and there is no evidence that the oiled layer contains VOCs, PCBs, PAHs, or significant concentrations of metals.

NARR ID: 5753228
NARR Code: Site History
Created By: SMILLER
Created Date: 05/26/2011
Updated By: SMILLER
Updated Date: 07/14/2011
Decode for NarcdID: Site History
NARR Comments: [5/25/11 SAM/SA] Industrial & commercial development of the Coast Crane & Equipment(CCE) parcel began in the 1960s and was home to heavy equipment companies(Cal-OR Equipment Comapny, McClelland Equipment Company(MECO) and Sparks Wagner Friction Supply). CCE parcel was owned and operated by CCE from 1992 to 2006 when it was sold to neighboring Metro Metals Northwest.

Administrative Action:
Action ID: 9426
Region: Northwestern Region
Complete Date: 11/12/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: 0

SPARKS-WAGNER INC (Continued) **U000433007**

Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 06/07/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 06/08/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Not reported
Complete Date: 09/16/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Low
Comments: Not reported

SPARKS-WAGNER INC (Continued) **U000433007**

Action ID: 9425
Region: Not reported
Complete Date: 09/15/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9449
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: Not reported
Comments: Not reported

Action ID: 9490
Region: Northwestern Region
Complete Date: 03/10/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Long Term Care/Control recommended (OM)
Further Action: Low
Comments: Not reported

Action ID: 9508
Region: Not reported
Complete Date: 02/12/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: Not reported
Comments: Not reported

Action ID: 9442

SPARKS-WAGNER INC (Continued) **U000433007**

Region: Not reported
Complete Date: 12/31/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132535
Operation Status: Active
Common Name: Riedel - Meco Site
Yrs of Operation: (see Party Information)
Comments: Abandoned compost facility; previously the site was a residence and farm; Coast Crane & Equipment now operating at this location.
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Active
Operations SIC Id: 195803
SIC Code: 4953
Created By: Not reported
Created Date: 12/17/2002
Operations SIC Id: 195804
SIC Code: 7353
Created By: Not reported
Created Date: 12/17/2002

LUST:
Region: North Western Region
Facility ID: 26-92-0312
Cleanup Received Date: 11/04/1992
Cleanup Start Date: 11/04/1992
Cleanup Complete Date: 07/11/1996
Decode for Region: North West Region

UST:
Facility ID: 5479
Facility Telephone: (503) 281-3113
Permittee Name: CHARLES BIRD
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 4
Number of Tanks: 4

AST:
Facility Id: 117434
Hazardous Substance: WASTE CUTTING OIL
Reporting Quantities: 1,000-4,999
Quantity Units: GALLONS
Physical State: LIQUID
Storage 1: ABOVEGROUND TANK

SPARKS-WAGNER INC (Continued) **U000433007**

County:	Not reported
Owner-Operator Name:	Not reported
Direct Site Phone:	Not reported
Report Class:	Not reported
Report Year:	Not reported
Is Poisonous Gas:	Not reported
Is Poisonous Material:	Not reported
Is Biological Hazard:	Not reported
Is Radioactive Material:	Not reported
Is Explosive:	Not reported
Status:	Inactive

HSIS:

Facility ID:	117434
Department Or Division Of Company:	TRANSPORTATION & MAINT
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	423930
NAICS Desc 1:	RECYCLABLE MATERIAL WHSLE
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	VICTOR WINKLER
Business Phone:	5032878861
Mailing Address:	5611 NE COLUMBIA BLVD
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	50
Day Phone:	5032878861
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	MATT HASLETT
Emergency Procedure:	SAFETY MANAGERS OFFICE
Business Type:	MANTENANCE SHOPS AND OFFICE FOR SCRAP METAL
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported

SPARKS-WAGNER INC (Continued) **U000433007**

Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	WASTE CUTTING OIL
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	117434
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE CUTTING OIL
United Nations/north America 4 Digit Class Number:	Not reported

SPARKS-WAGNER INC (Continued) **U000433007**

Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

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65 **PORT OF PORTLAND - AIR TRANS CENTER** **OR LUST** **U000432997**
East **CORNFOOT RD & BONG ST** **OR UST** **N/A**
1/4-1/2 **PORTLAND, OR 97218**
0.434 mi.
2291 ft.

Relative:
Higher

Actual:
22 ft.

LUST:

Region:	North Western Region
Facility ID:	26-89-0100
Cleanup Received Date:	05/25/1989
Cleanup Start Date:	05/31/1989
Cleanup Complete Date:	**05/31/1989**
Decode for Region:	**North West Region**

Region:	North Western Region
Facility ID:	26-89-0120
Cleanup Received Date:	06/23/1989
Cleanup Start Date:	06/20/1989
Cleanup Complete Date:	**07/06/1989**
Decode for Region:	**North West Region**

UST:

Facility ID:	9378
Facility Telephone:	(503)231-5000
Permittee Name:	RUSS KORVOLA
Number of Permitted Tanks:	Not reported
Active Tanks:	Not reported
Decommissioned Tanks:	2
Number of Tanks:	2

L66 **COLUMBIA WOODWORKING** **SEMS-ARCHIVE** **1003880263**
South **6432 NE COLUMBIA BLVD** **ORD980723134**
1/4-1/2 **PORTLAND, OR 97218**
0.436 mi.
2303 ft. **Site 2 of 3 in cluster L**

Relative:
Higher

Actual:
75 ft.

SEMS Archive:

Site ID:	1000494
EPA ID:	ORD980723134
Cong District:	03
FIPS Code:	41051
FF:	N
NPL:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information
Latitude:	45.568611
Longitude:	-122.595833

SEMS Archive Detail:

Region:	10
Site ID:	1000494
EPA ID:	ORD980723134
Site Name:	COLUMBIA WOODWORKING
NPL:	N
FF:	N
OU:	00
Action Code:	VS
Action Name:	ARCH SITE
SEQ:	1
Start Date:	Not reported
Finish Date:	1984-09-17 05:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf In-Hse

Region:	10
Site ID:	1000494
EPA ID:	ORD980723134
Site Name:	COLUMBIA WOODWORKING
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	1984-06-26 05:00:00
Finish Date:	1984-09-17 05:00:00
Qual:	N
Current Action Lead:	EPA Perf

Region:	10
Site ID:	1000494
EPA ID:	ORD980723134
Site Name:	COLUMBIA WOODWORKING
NPL:	N
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	1979-08-01 04:00:00
Finish Date:	1979-08-01 04:00:00

COLUMBIA WOODWORKING (Continued) **1003880263**

Qual:	Not reported
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000494
EPA ID:	ORD980723134
Site Name:	COLUMBIA WOODWORKING
NPL:	N
FF:	N
OU:	00
Action Code:	SI
Action Name:	SI
SEQ:	1
Start Date:	1979-08-01 04:00:00
Finish Date:	1979-09-01 04:00:00
Qual:	N
Current Action Lead:	St Perf

L67 **COLUMBIA WOODWORKING CO.** **OR ECSI** **1006864491**
South **6432 NE COLUMBIA BLVD** **FINDS** **N/A**
1/4-1/2 **PORTLAND, OR 97218** **OR UIC**
0.436 mi.
2303 ft. **Site 3 of 3 in cluster L**

Relative:
Higher

Actual:
75 ft.

ECSI:

State ID Number:	872
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	6061
Further Action:	258
Lat/Long (dms):	45 34 4.40 / -122 35 46.70
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	980723134
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	17
Qtr Section:	Not reported
Tax Lots:	19
Size:	1.75 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	12/12/2006
Created Date:	04/26/1988
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Medium
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported
Alias Name:	American Pole
Alias Name:	American Timber & Trading Co.

COLUMBIA WOODWORKING CO. (Continued) **1006864491**

Narrative:

NARR ID: 5727346
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (12/27/93 KPD/SAS) Columbia Woodworking was a lumber mill that operated at the site for an unknown length of time. The exact layout of buildings and other facilities at the site is also unknown. Prior to 1962, the site was used to make square cut lumber. That year, the company added wood treating to its operations. The wood was pressure treated in two retorts. Contaminated steam was condensed, collected, then apparently discharged into an on-site pond. Other wastewaters and preservatives were also allegedly discharged into the pond. After extracting the recoverable preservatives, water from the pond was then discharged into three on-site drywells. Treated lumber may have been allowed to drip dry over bare ground in a storage area on the western edge of the site. In 1969, the site was sold to Schiewe Trust. Within a year, all of the buildings were razed, and the drywells and pond filled in. The trust paved over most of the site and built two warehouses. A 1984 federal Preliminary Assessment (PA) concluded that no further federal action was needed, considering the high degradation rate of the preservatives. However, after completing its own PA in 1991, DEQ decided further investigation at the state level was needed.

NARR ID: 5727878
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: Inspection reports. EPA CERCLA Preliminary Assessment. State Preliminary Assessment.

NARR ID: 5728037
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: creosote, pentachlorophenol, copper, chromium, arsenic

NARR ID: 5728038
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Discharge of wastestreams to pond and drywells; past practices. Time of release: 1962-1970

COLUMBIA WOODWORKING CO. (Continued) **1006864491**

NARR ID: 5728039
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: There is a 70' deep irrigation well northeast of the site. The well owner had complained to DEQ of a strong creosote smell in the well water. DEQ sampled the well in 1970 and again in 1979, but did not detect creosote. (The well owner reported that the creosote odor disappeared a year after the site closed). Groundwater is approximately 45 feet deep at the site. The site is 3000 feet from the Columbia Slough.

NARR ID: 5728040
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (6/30/91 JMO/SAS) Basic PA completed, further action is needed. More background research is needed to confirm the locations of the retorts, drywells, and storage tanks. Soil and groundwater should be sampled. (10/24/97 LSK) Site reevaluated as part of review of all sites within the Columbia Slough Study Area. The site is located aout 3000 feet south of the Whitaker Slough.

NARR ID: 5728041
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: Threat to groundwater from migration of contaminants.

Administrative Action:
Action ID: 9510
Region: Northwestern Region
Complete Date: 10/24/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Expanded Preliminary Assessment recommended (XPA)
Further Action: Medium
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 10/24/1997
Rank Value: 0
Cleanup Flag: False

COLUMBIA WOODWORKING CO. (Continued) **1006864491**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 01/05/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: High-Medium
Comments: Not reported

Action ID: 9510
Region: Headquarters
Complete Date: 07/01/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

COLUMBIA WOODWORKING CO. (Continued) **1006864491**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Expanded Preliminary Assessment recommended (XPA)
Further Action: Low
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 01/03/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9512
Region: Not reported
Complete Date: 09/01/1979
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Screening Site Inspection 1
Further Action: Not reported
Comments: Not reported

Action ID: 9457
Region: Not reported
Complete Date: 09/17/1984
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Basic Preliminary Assessment
Further Action: Not reported
Comments: Not reported

Action ID: 9444
Region: Not reported
Complete Date: 09/17/1984
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency

COLUMBIA WOODWORKING CO. (Continued) **1006864491**

Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: Not reported
Comments: Not reported

Action ID: 9456
Region: Headquarters
Complete Date: 06/30/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Headquarters
Complete Date: 01/04/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9449
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132174
Operation Status: Inactive
Common Name: Columbia Woodworking Co.
Yrs of Operation: unknown; at least 1962-1970
Comments: Wood treatment, lumber mill.
Updated Date: 03/14/1996
Updated By: kpd
Decode for OpstatID: Inactive

COLUMBIA WOODWORKING CO. (Continued) **1006864491**

Operations SIC Id: 195034
SIC Code: 2421
Created By: Not reported
Created Date: 12/17/2002
Operations SIC Id: 195035
SIC Code: 2491
Created By: Not reported
Created Date: 12/17/2002

FINDS:

Registry ID: 110014273231

Environmental Interest/Information System
OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

OR UIC:
UIC Well #: 1
Type: 5W20
Type Description: Industrial Process Water And Waste Disposal
Status: Abandoned w/o Authority
UIC Number: 10124
Facility Status: Not Registered
Lat/Long: 45.567902 / -122.5963

UIC Well #: 2
Type: 5W20
Type Description: Industrial Process Water And Waste Disposal
Status: Abandoned w/o Authority
UIC Number: 10124
Facility Status: Not Registered
Lat/Long: 45.567902 / -122.5963

UIC Well #: 3
Type: 5W20
Type Description: Industrial Process Water And Waste Disposal
Status: Abandoned w/o Authority
UIC Number: 10124
Facility Status: Not Registered
Lat/Long: 45.567902 / -122.5963

M68
SE
1/4-1/2
0.442 mi.
2335 ft.

HEATING OIL TANK
6849 NE COLUMBIA BLVD
PORTLAND, OR 97218

Site 1 of 3 in cluster M

OR LUST **S118869292**
N/A

Relative:
Higher

Actual:
43 ft.

LUST:

Region:	North Western Region
Facility ID:	26-16-0593
Cleanup Received Date:	05/11/2016
Cleanup Start Date:	Not reported
Cleanup Complete Date:	**Not reported**
Decode for Region:	**North West Region**

M69
SE
1/4-1/2
0.442 mi.
2335 ft.

CMKB PROPERTIES LLC
6849 NE COLUMBIA BLVD
PORTLAND, OR 97218

Site 2 of 3 in cluster M

OR LUST **S118182192**
OR SPILLS **N/A**

Relative:
Higher

Actual:
43 ft.

LUST:

Region:	North Western Region
Facility ID:	26-16-0605
Cleanup Received Date:	05/11/2016
Cleanup Start Date:	08/02/2016
Cleanup Complete Date:	**03/29/2017**
Decode for Region:	**North West Region**

OR SPILLS:

Facility ID:	1995-2787
Incident Status:	Archive
Material:	Not reported
Quantity:	Not reported
Unit of Measure:	Not reported
Release Date:	12/29/1995
Description:	AUTO ACCIDENT - TRANSPORTING PRODUCE
Lat/Long:	45.5674 / -122.592
Source:	Motor Vehicle - Commercial
Media:	Non-saturated soil, rock, etc.
Responsible Company:	Not reported
Responsible Address:	Not reported
Responsible City,St,Zip:	Not reported

M70
SE
1/4-1/2
0.442 mi.
2335 ft.

OREGON FRESH FARMS, INC.
6849 NE COLUMBIA BLVD
PORTLAND, OR 97218

Site 3 of 3 in cluster M

OR SWF/LF **1004580052**
OR LUST **N/A**
OR SPILLS
FINDS
ECHO
OR NPDES
OR UIC

Relative:
Higher

Actual:
43 ft.

LF:

Permit Number:	1478
Facility Id:	112165
Facility Telephone:	503-914-4630
Facility Telephone 2:	Not reported
Lat/Long:	45.5674 / -122.592
Solid Waste Class:	Industrial

OREGON FRESH FARMS, INC. (Continued) **1004580052**

Solid Waste Type: SW Treatment
Date Opened: 09/07/2010
End Date: Not reported
Date Closed: Not reported
Permit Status: Terminated
Organization: Columbia Biogas, LLC
Contact Name: John McKinney
Affil Start Date: 09/07/2010
Mailing Address: PO Box 4120
Mailing City: Portland
Mailing State: OR
Mailing Zip: 97208-4120

LUST:
Region: North Western Region
Facility ID: 26-11-0281
Cleanup Received Date: 04/07/2011
Cleanup Start Date: Not reported
Cleanup Complete Date: 12/12/2011
Decode for Region: North West Region

OR SPILLS:
Facility ID: 2011-0804
Incident Status: Archive
Material: Industrial or home heating fuel oil
Quantity: 100
Unit of Measure: Gallons
Release Date: 03/01/2011
Description: Estimated 100 gallons of heating oil may have leaked from underground HOT after contractor punctured tank with drill in late February 2011 and heating oil was then put in tank.
Lat/Long: 45.5674 / -122.592
Source: Heating Oil UST
Media: Coding for the PS/BC Oil Spill Database
Responsible Company: Oregon Fresh Farms
Responsible Address: 6849 NE Columbia Blvd
Responsible City,St,Zip: Portland, OR 97218-3373

Facility ID: 2011-0804
Incident Status: Archive
Material: Industrial or home heating fuel oil
Quantity: 100
Unit of Measure: Gallons
Release Date: 03/01/2011
Description: Estimated 100 gallons of heating oil may have leaked from underground HOT after contractor punctured tank with drill in late February 2011 and heating oil was then put in tank.
Lat/Long: 45.5674 / -122.592
Source: Heating Oil UST
Media: Non-saturated soil, rock, etc.
Responsible Company: Oregon Fresh Farms
Responsible Address: 6849 NE Columbia Blvd
Responsible City,St,Zip: Portland, OR 97218-3373

FINDS:

OREGON FRESH FARMS, INC. (Continued) **1004580052**

Registry ID: 110009699665

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

US National Pollutant Discharge Elimination System (NPDES) module of the Compliance Information System (ICIS) tracks surface water permits issued under the Clean Water Act. Under NPDES, all facilities that discharge pollutants from any point source into waters of the United States are required to obtain a permit. The permit will likely contain limits on what can be discharged, impose monitoring and reporting requirements, and include other provisions to ensure that the discharge does not adversely affect water quality.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1004580052
Registry ID:	110009699665
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110009699665

NPDES:

WQ File Nbr:	107611
Legal Name:	LUCKY FARM, INC
Region:	Not reported
Pri SIC:	161
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	NPDES-IW-B03
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	107611
Legal Name:	LUCKY FARM, INC

OREGON FRESH FARMS, INC. (Continued) **1004580052**

Region:	Not reported
Pri SIC:	161
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	NPDES-IW-N
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	125201
Legal Name:	205 Properties LLC
Region:	NWR
Pri SIC:	1542
Facility Type:	NONRESIDENTIAL CONSTRUCT, NEC
Latitude:	45.5691
Longitude:	-122.5922
Category:	STM
Permit Type:	GEN12C
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES construction more than 1 acre disturbed ground
Expiration Date:	12/14/2020
EPA Number:	ORR10E834
UIC Facility:	False
Admin Agent:	NW Region Office
Last Action Date:	05/11/2018
Permit Writer:	Kennedy
Compliance Inspector:	Kennedy
DMR Reviewer:	Not reported
Application Number:	953360
Class:	MINOR
Start Date:	05/11/2017
Region Decode:	North West Region

OR UIC:

UIC Well #:	1
Type:	5D4
Type Description:	Industrial Storm Water Drainage
Status:	Active
UIC Number:	14223
Facility Status:	Not Registered
Lat/Long:	45.5676 / -122.5919

71
WSW
1/4-1/2
0.463 mi.
2442 ft.

MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
5135 NE COLUMBIA
PORTLAND, OR 97218

RCRA-CESQG
OR LUST
PADS
OR MANIFEST
OR UIC

1004770380
ORD987170222

Relative:
Higher

Actual:
39 ft.

RCRA-CESQG:

Date form received by agency:	12/31/2008
Facility name:	MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Facility address:	5135 NE COLUMBIA PORTLAND, OR 97218
EPA ID:	ORD987170222
Mailing address:	PO BOX 3107 PORTLAND, OR 97208-3107
Contact:	HERBERT WAGNER
Contact address:	PO BOX 3107 PORTLAND, OR 97208-3107
Contact country:	US
Contact telephone:	503-916-2000
Telephone ext.:	7
Contact email:	Not reported
EPA Region:	10
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	MULTNOMAH COUNTY SCHOOL DISTRICT NO 1
Owner/operator address:	PO BOX 3107 PORTLAND, OR 97208
Owner/operator country:	US
Owner/operator telephone:	503-916-2000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	7
Legal status:	District
Owner/Operator Type:	Operator
Owner/Op start date:	12/31/2008
Owner/Op end date:	Not reported

Owner/operator name:	MULTNOMAH COUNTY SD 1
Owner/operator address:	PO BOX 3107 PORTLAND, OR 97208
Owner/operator country:	US
Owner/operator telephone:	503-916-2000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported

MULTNOMAH CO SD 1 WHITAKER HOLDING SITE (Continued) **1004770380**

Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Owner
Owner/Op start date: 03/04/1992
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: NA
. Waste name: NA

Historical Generators:
Date form received by agency: 12/31/2007
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2006
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2005
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2004
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2003
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/06/2003
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/15/2002
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/22/2001

MULTNOMAH CO SD 1 WHITAKER HOLDING SITE (Continued) **1004770380**

Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Small Quantity Generator

Date form received by agency: 01/31/2000
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/11/1999
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/02/1998
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/21/1997
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/22/1996
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/03/1995
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/07/1994
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/01/1993
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 04/01/1992
Site name: MULTNOMAH CO SD 1 WHITAKER HOLDING SITE
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: NONE
. Waste name: None

Violation Status: No violations found

LUST:
Region: North Western Region
Facility ID: 26-09-0383
Cleanup Received Date: 04/24/2009
Cleanup Start Date: 04/21/2009
Cleanup Complete Date: 08/19/2009
Decode for Region: North West Region

PADS:
EPAID: ORD987170222
Facility name: WHITAKER H.S.
Facility Address: 5135 NE COLUMBIA BLVD.
PORTLAND, OR 97211

MULTNOMAH CO SD 1 WHITAKER HOLDING SITE (Continued) **1004770380**

Facility country: US
Generator: Yes
Storer: No
Transporter: No
Disposer: No
Research facility: No
Smelter: No
Facility owner name: MULTNOMAH CO. SD #1
Contact title: Not reported
Contact name: HERB WAGNER
Contact tel: 503-916-2000
Contact extension: 4277
Contact Email: Not reported
Mailing address: 501 N. DIXON ST.
PORTLAND, OR 97227
Mailing country: US
Cert. date: 03/28/2003

OR MANIFEST:
Manifest Year: Manifest Year - 2006
EPA Id: ORD987170222
Inactive Status: Not reported
Organization Name: Not reported
Contact Name: Herbert Wagner
Contact Telephone Number: 503 916-2000 X4277
Mailing Address: PO Box 3107
Mailing City/State/Zip: Portland, OR 97208-3107

OR UIC:
UIC Well #: 1
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 2
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 3
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

MULTNOMAH CO SD 1 WHITAKER HOLDING SITE (Continued) **1004770380**

UIC Well #: 4
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 5
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 6
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 7
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 8
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 9
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 10
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 11

MULTNOMAH CO SD 1 WHITAKER HOLDING SITE (Continued) **1004770380**

Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 12
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 13
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 14
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 15
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 16
Type: 5W9
Type Description: Sewage Drill Holes/seepage Pits
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

UIC Well #: 17
Type: 5W9
Type Description: Sewage Drill Holes/seepage Pits
Status: Active
UIC Number: 13888
Facility Status: Registered & not RA
Lat/Long: 45.570702 / -122.6099

N72 **SENTER TOOL SERVICE INC** **OR ECSI** **U000433005**
SW **5413 NE COLUMBIA BLVD** **OR LUST** **N/A**
1/4-1/2 **PORTLAND, OR 97218** **OR UST**
0.467 mi. **OR UIC**
2464 ft. **Site 1 of 3 in cluster N**

Relative:
Higher

Actual:
54 ft.

ECSI:

State ID Number:	4581
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	19099
Further Action:	0
Lat/Long (dms):	45 34 16.70 / -122 36 27.00
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	19
Qtr Section:	Not reported
Tax Lots:	1N2E18A
Size:	4.39 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	03/04/2009
Created Date:	01/25/2006
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported
Alias Name:	United Rentals
Alias Name:	Senter Tool Service

Narrative:

NARR ID:	5756298
NARR Code:	Site Contacts
Created By:	SMILLER
Created Date:	07/13/2016
Updated By:	SMILLER
Updated Date:	07/13/2016
Decode for NarcdID:	Site Contacts
NARR Comments:	Craig Moody 503-201-3266

NARR ID:	5747804
NARR Code:	Contamination
Created By:	JWAGGY
Created Date:	01/25/2006
Updated By:	GWISTAR
Updated Date:	05/23/2006
Decode for NarcdID:	Contamination
NARR Comments:	(1/15/06 CH/SAP) Site adjacent to Whitaker Ponds and Whitaker Slough reach of Columbia Slough a water body with known sediment contamination issues that is under a total maximum daily load (TMDL)

SENTER TOOL SERVICE INC (Continued) **U000433005**

to address toxics and other water quality pollutants. Recent aerial photographs show indications of stressed vegetation and ground disturbing activity on this property.

NARR ID: 5747802
NARR Code: Manner of Release
Created By: JWAGGY
Created Date: 01/25/2006
Updated By: SMILLER
Updated Date: 10/30/2014
Decode for NarcdID: Manner of Release
NARR Comments: Unknown. [10/30/14 SA/SAM] a ditch runs along the northern border of the western neighbor 5327 NE Columbia Blvd ECSI# 5903 under heavy blackberries and may extend to the Moody property. The end discharge location was not visible due to the heavy blackberry brush, but possibly flows towards the East Whitaker Pond.

NARR ID: 5747803
NARR Code: Remedial Action
Created By: JWAGGY
Created Date: 01/25/2006
Updated By: GWISTAR
Updated Date: 05/23/2006
Decode for NarcdID: Remedial Action
NARR Comments: (1/25/06 CH/SAP) Site evaluation recommended, to determine if past activities have caused a release of hazardous substances that pose a threat to human health and the environment, especially to the Whitaker Slough area.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 01/25/2006
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/25/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 01/25/2006
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/25/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

SENTER TOOL SERVICE INC (Continued) **U000433005**

Operations:
- Operation Id: 135146
- Operation Status: Active
- Common Name: Moody Holdings Property
- Yrs of Operation: 1984 to present (possibly sooner)
- Comments: Light industrial
- Updated Date: 01/25/2006
- Updated By: JWAGGY
- Decode for OpstatID: Active

LUST:
- Region: North Western Region
- Facility ID: 26-99-0106
- Cleanup Received Date: 01/14/1999
- Cleanup Start Date: 07/10/1998
- **Cleanup Complete Date: 05/21/2002**
- **Decode for Region: North West Region**

UST:
- Facility ID: 1688
- Facility Telephone: (503) 281-1151
- Permittee Name: PAUL W MOODY, PRESIDENT
- Number of Permitted Tanks: Not reported
- Active Tanks: Not reported
- Decommissioned Tanks: 2
- Number of Tanks: 2

OR UIC:
- UIC Well #: 1
- Type: 5W10
- Type Description: Cesspools
- Status: Active
- UIC Number: 12298
- Facility Status: Not Registered
- Lat/Long: 45.570202 / -122.6075

N73 **MILLER PROPERTY** **OR ECSI** **S103842055**
SW **5421 NE COLUMBIA BLVD.** **OR HAZMAT** **N/A**
1/4-1/2 **PORTLAND, OR 97218** **OR UIC**
0.467 mi.
2467 ft. **Site 2 of 3 in cluster N**

Relative:
Higher

Actual:
55 ft.

ECSI:
- State ID Number: 1040
- Brown ID: 0
- Study Area: False
- Region ID: 2
- Legislatve ID: 0
- Investigation: Suspect
- FACA ID: 8941
- Further Action: 260
- Lat/Long (dms): 45 34 12.40 / -122 36 26.60
- County Code: 26.00
- Score Value: Not reported
- Cerclis ID: Not reported
- Township Coord.: 1.00

MILLER PROPERTY (Continued) **S103842055**

Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 01/11/2006
Created Date: 07/08/1990
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Low
Decode For Investstat: Suspect
Decode For Legislative: Not reported

Narrative:
NARR ID: 5731104
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: Portland Police Department called DEQ to the lab on 2/12/90. Site judged to be a medium P2P lab. Investigators noted a well worn path from a mobile home on site to the bank of the Columbia Slough and suspect the slough was used as a dump for process waste. PPD contact: Detective Southern (789-7621).

NARR ID: 5731105
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: illegal drug lab process waste

NARR ID: 5731106
NARR Code: Site Ownership
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Ownership
NARR Comments: Floyd E. Miller, LGO, CUR,

Administrative Action:
Action ID: 9508
Region: Northwestern Region
Complete Date: 11/12/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality

MILLER PROPERTY (Continued) **S103842055**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: Low
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132351
Operation Status: Unknown
Common Name: Miller Property
Yrs of Operation: unknown
Comments: Rental residence used as an illegal drug lab.
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Unknown

HAZMAT:
Responsble Party: UNKNOWN
RP Company: Not reported
RP Address: Not reported
RP City,St,Zip: 97000
Facility ID: 900071
OERS Number: Not reported
Dept Rsp: PORTLAND BUREAU OF F&R&EMS
Narrative: Not reported
Property Loss: Not reported
Amount Released: Not reported
Service County: Not reported
Service Name: Not reported
Incident Type: Not reported
Civilian Casualty Activity: Not reported
Chemical Name: Not reported
Hazmat Area Affected: Not reported
Hazmat Area Evacuated: Not reported
Hazmat Container Type: Not reported
Hazmat Physical State Released: Not reported
Hazmat Released Into: Not reported
Hazmat Released Volume Units: Not reported
Hazmat Released Weight Units: Not reported
Hazmat Released From: Not reported
Hazmat Area Affected Measurement: Not reported
Hazmat No. of People Evacuated: Not reported

MILLER PROPERTY (Continued) **S103842055**

Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	PORTLAND BUREAU OF F&R&EMS
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	5032437946
Osfm Incident Report Number:	900071
Dept. Responding:	PORTLAND BUREAU OF F&R&EMS
Person Making Report:	DON PIZZO
Title:	LT
Agency:	PORTLAND BUREAU OF F&R&EMS
Phone:	5032437946
Date Of Incident:	02/12/1990
Call Time:	12:00:00 AM
In Route:	12:00:00 AM
Arrival:	4:10:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	8:18:00 PM
Dist Of Incident:	PORTLAND BUREAU OF F&R&EMS
Were State Resources Used?:	False
Was Oers Notified?:	True
Oers Number:	Not reported
Team Number:	Not reported
Agency Report Number:	90-6403
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Private Structure
Area Type:	Industrial
Responsible Party(Ies):	UNKNOWN
Company:	Not reported
Respcontact:	Not reported
Address:	Not reported
Resp City:	Not reported
Resp State:	Not reported
Resp ZipCode:	97000
Phone:	Not reported
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0

MILLER PROPERTY (Continued) **S103842055**

Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	Not reported
Cause:	Improper Storage
Vehicle And Cargo:	2500
Fixed Property:	0
Total Loss:	$2,500.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	762
Chemical Id:	6951
Incident Id:	900071
Chemical Name:	CHLOROFORM
UNNA:	Not reported
Amount At Risk:	1
Amount Released:	4
Amount Measured:	2
Biological:	False
Radiological:	False

Chemical Id:	6951
Chemical Name:	CHLOROFORM
Hazardous Ingredient:	CHLOROFORM
Hazardous Class 1:	6.1
Hazardous Class 2:	6.4
Hazardous Rank:	2
Case Number:	67663
UNNA Number:	1888
EPA Pest Reg:	Not reported
EHA Chem:	Y
PSM Chem:	N
CAA 112R Chem:	Y

Method:

Method Used Id:	1308
Incident Id:	900071
Identity Method:	6

Released:

Release Behavior Id:	3712
Incident Id:	900071
Behavior:	4

Narrative:

Narrative Id:	2802

MILLER PROPERTY (Continued) **S103842055**

Incident Id: 900071
Incident Narrative: INCIDENT INVOLVED METH LAB IN A TRAVEL TRAILE. INCIDENT INVOLVED METH LAB IN A TRAVEL TRAILE.
Incident Date: 2/12/1990

OR UIC:
UIC Well #: 1
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13397
Facility Status: Not Registered
Lat/Long: 45.570099 / -122.6082

UIC Well #: 2
Type: 5W10
Type Description: Cesspools
Status: Active
UIC Number: 13397
Facility Status: Not Registered
Lat/Long: 45.570099 / -122.6082

N74 **TRAIL EQUIPMENT COMPANY** **OR LUST** **U000433013**
SW **5440 NE COLUMBIA BLVD** **OR UST** **N/A**
1/4-1/2 **PORTLAND, OR 97218** **OR HSIS**
0.476 mi.
2514 ft. **Site 3 of 3 in cluster N**

Relative:
Higher

Actual:
60 ft.

LUST:
Region: North Western Region
Facility ID: 26-97-0238
Cleanup Received Date: 03/27/1997
Cleanup Start Date: 03/27/1997
Cleanup Complete Date: 05/19/1997
Decode for Region: North West Region

UST:
Facility ID: 9859
Facility Telephone: (503) 288-8311
Permittee Name: JEAN THOMPSON-BEAIRD, CREDIT MANAGER
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 2
Number of Tanks: 2

HSIS:
Facility ID: 107158
Department Or Division Of Company: Not reported
Extremely Hazardous Substance: N
Facility Has Written Emergency Plan: Y
Contains 112R: N
NAICS Code 1: 423850
NAICS Desc 1: SVC ESTABLISHMENT EQP & SUPPLIES WHSLE
NAICS Code 2: 000000
NAICS Desc 2: Not reported

TRAIL EQUIPMENT COMPANY (Continued) **U000433013**

Manager Name:	RICK MESSINA
Business Phone:	5032825506
Mailing Address:	5440 NE COLUMBIA BLVD
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	20
Day Phone:	5037209028
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	STEVE WILCOX
Emergency Procedure:	MGR OFFICE AND SHOP
Business Type:	MFG OF OVERHEAD FIRE SPRINKLER PIPING SYSTEMS
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	ARGON 75%/CARBON DIOXIDE 25%
Physical Description:	GAS
Case Number:	7440371
Facility Id:	107158
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20

TRAIL EQUIPMENT COMPANY (Continued) **U000433013**

Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON 75%/CARBON DIOXIDE 25%
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ARGON 90%/CARBON DIOXIDE 10%
Physical Description:	GAS
Case Number:	7440371
Facility Id:	107158
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20

TRAIL EQUIPMENT COMPANY (Continued) **U000433013**

Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON 90%/CARBON DIOXIDE 10%
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

75
SW
1/4-1/2
0.481 mi.
2540 ft.

HAMILTON ENGINE SALES
5540 NE COLUMBIA BLVD
PORTLAND, OR 97218

OR LUST
OR UST
OR AST
OR HSIS

1000254754
N/A

Relative:
Higher

Actual:
64 ft.

LUST:

Region:	North Western Region
Facility ID:	26-90-0217
Cleanup Received Date:	06/19/1989
Cleanup Start Date:	06/19/1990
Cleanup Complete Date:	**06/30/1990**
Decode for Region:	**North West Region**

UST:

Facility ID:	2328
Facility Telephone:	(503)288-6714
Permittee Name:	PHILLIP G DIFABIO, SEC/TREAS
Number of Permitted Tanks:	Not reported
Active Tanks:	Not reported
Decommissioned Tanks:	1
Number of Tanks:	1

AST:

Facility Id:	024285
Hazardous Substance:	DIESEL FUEL 2
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported
Storage 1:	Above ground tank
County:	MULTNOMAH
Owner-Operator Name:	ANDREW
Direct Site Phone:	5032886714
Report Class:	Annual
Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No
Is Biological Hazard:	No
Is Radioactive Material:	No
Is Explosive:	No
Status:	Not reported

HSIS:

Facility ID:	024285
Department Or Division Of Company:	Not reported
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	423830
NAICS Desc 1:	IND MACHINERY & EQP WHSLE
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	ANDREW TELFORD
Business Phone:	5032886714
Mailing Address:	PO BOX 13100
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97213

HAMILTON ENGINE SALES (Continued) **1000254754**

No. of Employees:	15
Day Phone:	5032886714
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	KEN VANDYKE
Emergency Procedure:	BULLETIN BOARD
Business Type:	DIESEL ENGINES SALES SERVICE PARTS
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	ARGON 75%/CARBON DIOXIDE 25%
Physical Description:	GAS
Case Number:	7440371
Facility Id:	024285
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported

HAMILTON ENGINE SALES (Continued) **1000254754**

Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON 75%/CARBON DIOXIDE 25%
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	DIESEL FUEL 2
Physical Description:	LIQUID
Case Number:	68476346
Facility Id:	024285
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	C
Description:	TANK INSIDE BUILDING
Type Code:	A

HAMILTON ENGINE SALES (Continued) **1000254754**

Temperature Description:	ABOVEGROUND TANK
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	DIESEL FUEL 2
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	68476346
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	024285
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported

HAMILTON ENGINE SALES (Continued) **1000254754**

Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Chemical Abstract Service Identifier Number:	74862
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Facility ID:	024285
Department Or Division Of Company:	Not reported
Extremely Hazardous Substance:	Not reported
Facility Has Written Emergency Plan:	Not reported
Contains 112R:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
Manager Name:	Not reported
Business Phone:	Not reported

HAMILTON ENGINE SALES (Continued) **1000254754**

Mailing Address:	Not reported
Mailing City:	Not reported
Mailing State:	Not reported
Mailing Zip:	Not reported
No. of Employees:	Not reported
Day Phone:	Not reported
Placard:	Not reported
Fire Dept Code:	Not reported
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Not reported
Emergency Contact:	Not reported
Emergency Procedure:	Not reported
Business Type:	Not reported
Facility Type:	Private
Division/Department:	SOMERS ENGINE LLC
Facility Status:	ACTIVE
Status TRI:	Active
Status RMP:	Active
Status PSM:	Active
Status CR2K:	Active
Status 302:	Active
Owner Name:	ANDREW TELFORD
Latest Report ID:	31535
Case Number:	68476346
Chemical Name:	DIESEL FUEL 2
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	4
Maximum DailyAmount Unit:	gal
Chemical Added Date:	09/29/2017
Is ChemPSM:	No
Is Chem112r:	No
Is Chem302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1993
NFPA Health:	2
NFPA Flammability:	2
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Physical Combustive
No# of Days Onsite:	365
Latitude:	45.5692
Longitude:	-122.606

Facility:

Chemical Name:	ARGON 75%/CARBON DIOXIDE 25%
Physical Description:	GAS
Case Number:	7440371
Facility Id:	024285
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3

HAMILTON ENGINE SALES (Continued) **1000254754**

Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON 75%/CARBON DIOXIDE 25%
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	DIESEL FUEL 2
Physical Description:	LIQUID
Case Number:	68476346
Facility Id:	024285
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2

HAMILTON ENGINE SALES (Continued) **1000254754**

Description Of The Unit Of Measure:	GALLONS
Type Code:	C
Description:	TANK INSIDE BUILDING
Type Code:	A
Temperature Description:	ABOVEGROUND TANK
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	DIESEL FUEL 2
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	68476346
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	024285
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3

HAMILTON ENGINE SALES (Continued) **1000254754**

Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Chemical Abstract Service Identifier Number:	74862
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Facility ID:	024285
Department Or Division Of Company:	Not reported
Extremely Hazardous Substance:	Not reported
Facility Has Written Emergency Plan:	Not reported
Contains 112R:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported

HAMILTON ENGINE SALES (Continued) **1000254754**

NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
Manager Name:	Not reported
Business Phone:	Not reported
Mailing Address:	Not reported
Mailing City:	Not reported
Mailing State:	Not reported
Mailing Zip:	Not reported
No. of Employees:	Not reported
Day Phone:	Not reported
Placard:	Not reported
Fire Dept Code:	Not reported
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Not reported
Emergency Contact:	Not reported
Emergency Procedure:	Not reported
Business Type:	Not reported
Facility Type:	Private
Division/Department:	SOMERS ENGINE LLC
Facility Status:	ACTIVE
Status TRI:	Active
Status RMP:	Active
Status PSM:	Active
Status CR2K:	Active
Status 302:	Active
Owner Name:	ANDREW TELFORD
Latest Report ID:	31535
Case Number:	7440371
Chemical Name:	ARGON 75%/CARBON DIOXIDE 25%
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	10
Maximum DailyAmount Unit:	cuft
Chemical Added Date:	09/29/2017
Is ChemPSM:	No
Is Chem112r:	No
Is Chem302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1956
NFPA Health:	1
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	Not reported
Hazards:	Physical Combustive
No# of Days Onsite:	365
Latitude:	45.5692
Longitude:	-122.606

Facility:

Chemical Name:	ARGON 75%/CARBON DIOXIDE 25%
Physical Description:	GAS
Case Number:	7440371
Facility Id:	024285

HAMILTON ENGINE SALES (Continued) **1000254754**

Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON 75%/CARBON DIOXIDE 25%
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	DIESEL FUEL 2
Physical Description:	LIQUID
Case Number:	68476346
Facility Id:	024285

HAMILTON ENGINE SALES (Continued) **1000254754**

Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	C
Description:	TANK INSIDE BUILDING
Type Code:	A
Temperature Description:	ABOVEGROUND TANK
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	DIESEL FUEL 2
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	68476346
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	024285

HAMILTON ENGINE SALES (Continued) **1000254754**

Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Chemical Abstract Service Identifier Number:	74862
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

O76
South
1/4-1/2
0.497 mi.
2623 ft.

POWELL DISTRIBUTING CO INC - 60TH
6021 NE PORTLAND HWY
PORTLAND, OR 97218

OR LUST **U000433001**
OR UST **N/A**
OR AIRS

Site 1 of 2 in cluster O

Relative:
Higher

Actual:
68 ft.

LUST:

Region:	North Western Region
Facility ID:	26-90-0263
Cleanup Received Date:	07/25/1990
Cleanup Start Date:	08/06/1990
Cleanup Complete Date:	**06/13/1996**
Decode for Region:	**North West Region**

UST:

Facility ID:	6061
Facility Telephone:	503-289-5558
Permittee Name:	Jason Powell
Number of Permitted Tanks:	4
Active Tanks:	4
Decommissioned Tanks:	3
Number of Tanks:	7

OR AIRS:

Year:	Not reported
Emission:	Not reported
Permit Number:	26-9663-22-01
Permit Type:	General (5) ACDP
Expiration Date:	03/01/2020
Source ID:	Not reported
Issue Date:	04/21/2011
NAICS Code:	447190
Is Primary:	Not reported
SIC Code:	Not reported
Is Primary:	Not reported
Latitude:	45.5674
Longitude:	-122.6007
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

77
WNW
1/2-1
0.520 mi.
2746 ft.

OREGON NATIONAL GUARD - PDX AIRPORT #1
SOUTHWEST PORTION OF AIRPORT
PORTLAND, OR 97218

OR ECSI **S105613710**
OR VCP **N/A**

Relative:
Lower

Actual:
13 ft.

ECSI:

State ID Number:	637
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	831

OREGON NATIONAL GUARD - PDX AIRPORT #1 (Continued) **S105613710**

Investigation:	Suspect
FACA ID:	38610
Further Action:	0
Lat/Long (dms):	45 34 48.00 / -122 36 39.00
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	981770316
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	7
Qtr Section:	Not reported
Tax Lots:	Not reported
Size:	162 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	08/23/2013
Created Date:	11/04/1988
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Suspect
Decode For Legislative:	Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420

Alias Name: PDX Airport #2
Alias Name: Oregon National Guard Disposal Site
Alias Name: Portland International Airport #1
Alias Name: Portland International Airport #2

Hazardous Release:

Substance ID.:	121668
Haz Release ID:	381642
Qty Released:	Not reported
Date Released:	Not reported
Update Date:	04/29/1998
Update By:	Not reported
Substance Code:	7440-43-9
Substance Name:	CADMIUM
Substance Abbrev.:	Not reported
Substance Category ID:	8460
Substance Category:	Inorganics
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8460
Substance Category:	Inorganics
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Alias ID:	319291
Sub Alias Name:	CD
Sampling Result ID:	341973
Feature Id:	Not reported
Hazard Release Id:	381642
Medium:	698
Substance Abbrev.:	Not reported

OREGON NATIONAL GUARD - PDX AIRPORT #1 (Continued) **S105613710**

Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: 02/18/1998
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.055 ppm
Last Update By: jmd
Update Date: 04/29/1998
Decode for MediumID: Groundwater

Substance ID.: 121664
Haz Release ID: 381643
Qty Released: Not reported
Date Released: Not reported
Update Date: 04/29/1998
Update By: Not reported
Substance Code: 7440-38-2
Substance Name: ARSENIC
Substance Abbrev.: Not reported
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319286
Sub Alias Name: AS
Sampling Result ID: 341974
Feature Id: Not reported
Hazard Release Id: 381643
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/18/1998
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.46 ppm
Last Update By: jmd
Update Date: 04/29/1998
Decode for MediumID: Groundwater

Substance ID.: 121671
Haz Release ID: 385257
Qty Released: unknown

OREGON NATIONAL GUARD - PDX AIRPORT #1 (Continued) **S105613710**

Date Released: 1950s to 1986
Update Date: 04/11/1988
Update By: Not reported
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 346497
Feature Id: Not reported
Hazard Release Id: 385257
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.71 ppm
Last Update By: jmd
Update Date: 04/29/1998
Decode for MediumID: Groundwater

Substance ID.: 121639
Haz Release ID: 385258
Qty Released: unknown
Date Released: 1950s to 1986
Update Date: 04/11/1988
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported

OREGON NATIONAL GUARD - PDX AIRPORT #1 (Continued) **S105613710**

Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 346498
Feature Id: Not reported
Hazard Release Id: 385258
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2.175 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater
Sampling Result ID: 346856
Feature Id: Not reported
Hazard Release Id: 385258
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 46 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121989
Haz Release ID: 385259
Qty Released: unknown
Date Released: 1950s to 1986
Update Date: 04/11/1988
Update By: Not reported
Substance Code: ECD200
Substance Name: OIL OR FUEL RELATED COMPOUNDS
Substance Abbrev.: Not reported
Substance Category ID: 8532
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8532
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported

OREGON NATIONAL GUARD - PDX AIRPORT #1 (Continued) **S105613710**

Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 346499
Feature Id: Not reported
Hazard Release Id: 385259
Medium: 701
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 890 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Sediment

Narrative:

NARR ID: 5728016
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (12/28/88 DAB/SAS) Allegedly, the Guard created a shallow landfill in the 1950s and 60s on land now owned by the Port of Portland. The landfill was near the airport and was believed to occupy an area of 750' x 300'. No information is available to characterize or quantify wastes disposed of at the landfill (however, wastes would most likely have included oil, sulfuric acid, solvents, enamel paint, xylenes, acetic acid, and photographic chemicals). In 1986, the Port of Portland hired a consultant to evaluate the environmental condition of the area. High levels of lead were found in sediment from a drainage ditch, and lead, cadmium, and chromium were found in shallow groundwater.

NARR ID: 5727907
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: 1) December 1988 EPA CERCLA Preliminary Assessment. 2) August 1989 EPA CERCLA Site Inspection. 3) June 1990 <quot>Draft Final Report for SI at the Oregon Air National Guard<quot>. 4) May 1991 <quot>Final Report for SI at the 142nd Fighter Interceptor Group<quot>. 5) November 1991 <quot>Decision Document (UST Pit Area)<quot>. 6) Rai Peterson DEQ NWR Memo. 7) Strategy Recommendation, February 18, 1998.

NARR ID: 5728434
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported

OREGON NATIONAL GUARD - PDX AIRPORT #1 (Continued) **S105613710**

Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Lead, chromium, oil, waste oils, solvents, paints, sulfuric acid, xylenes.

NARR ID: 5728435
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Location
NARR Comments: NOTE: site incorporates former ECSI site #780, and is land formerly occupied by the Oregon Air National Guard. It is west of the current Oregon Air National Guard Base at 6801 NE Cornfoot Rd. (ECSI #1372).

NARR ID: 5728436
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Spills from former fleet maintenance facility; releases from former landfill, jet fuel release from Aircraft Service International, a lessee on the site (has been entered as separate ECSI site). Time of release: 1950s to 1997.

NARR ID: 5728437
NARR Code: Site Ownership
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Ownership
NARR Comments: U.S. Air Force, OPR, PRI, Department of Defense, OWP, PRI,

NARR ID: 5728438
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: MPUGH
Updated Date: 03/14/2005
Decode for NarcdID: Remedial Action
NARR Comments: (12/28/88 DAB/SAS) As a result of the Port of Portland’s discovery of contaminated sediments in a drainage ditch, the Port removed about 800 cubic yards of sediments, using <quot>sight & smell<quot> standards to determine the limits of contamination. The Port then placed up to 18 feet of dredge fill over this cleanup area, as part of an airport expansion project. Ten to 18 feet of fill were also placed over the former landfill area. Groundwater contamination may remain if organic and inorganic chemicals from the buried landfill continue to act as a source area. (9/15/95 DMC/SAS) In 1989, EPA completed a Site Inspection and determined that the site would not be eligible for inclusion on the NPL. Therefore, EPA determined that it

OREGON NATIONAL GUARD - PDX AIRPORT #1 (Continued) **S105613710**

would take no further federal action. (2/18/98 LSK/SAP) Strategy Recommendation completed as part of re-evaluation of sites within the Columbia Slough Study Area. Additional soil sampling and groundwater monitoring recommended as a medium priority. (1/21/01 MJM/VCP) Port of Portland entered DEQ Independent Cleanup Program (ICP) in January 2000 and is proceeding with additional site investigation. 3/14/05 MTP. DEQ anticipates that a final site investigation and risk evaluation report will be submitted in 2005.

Administrative Action:
Action ID: 9413
Region: Northwestern Region
Complete Date: 07/30/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/11/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Closeout activities on completed project
Further Action: 0
Comments: Not reported

Action ID: 9510
Region: Northwestern Region
Complete Date: 02/19/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Expanded Preliminary Assessment recommended (XPA)
Further Action: Medium
Comments: Not reported

Action ID: 9435
Region: Northwestern Region
Complete Date: 07/30/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Independent Cleanup Program
Further Action: 0
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 02/18/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

OREGON NATIONAL GUARD - PDX AIRPORT #1 (Continued) **S105613710**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: 0
Comments: Not reported

Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9512
Region: Not reported
Complete Date: 08/17/1989
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Screening Site Inspection 1
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 12/21/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 12/21/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality

OREGON NATIONAL GUARD - PDX AIRPORT #1 (Continued) **S105613710**

Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Not reported
Comments: Not reported

Action ID: 9482
Region: Headquarters
Complete Date: 12/28/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: Federal Site Inspection recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9456
Region: Headquarters
Complete Date: 12/27/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9444
Region: Not reported
Complete Date: 10/02/1989
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported

OREGON NATIONAL GUARD - PDX AIRPORT #1 (Continued) **S105613710**

Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: Not reported
Comments: Not reported

Action ID: 9445
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Responsible party notified re 11/88 Inventory listing
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 131946
Operation Status: Inactive
Common Name: Oregon National Guard Dump Site
Yrs of Operation: 1950s through 1960s
Comments: Inactive portion of Air National Guard facility including a landfill and a fleet maintenance facility.
Updated Date: 06/04/2001
Updated By: jmw
Decode for OpstatID: Inactive
Operations SIC Id: 195119
SIC Code: 4953
Created By: Not reported
Created Date: 12/17/2002
Operations SIC Id: 195120
SIC Code: 7699
Created By: Not reported
Created Date: 12/17/2002
Operations SIC Id: 195121
SIC Code: 9711
Created By: Not reported
Created Date: 12/17/2002

VCS:
ECS Site ID: 637
Facility Size: 162 acres
Action: Closeout activities on completed project
Start Date: 07/30/2013
End Date: 07/30/2013
Facility Status: Completed
Program: ICP
Latitude: 45.5799
Longitude: -122.6108

78
SSE
1/2-1
0.523 mi.
2764 ft.

P&L ENTERPRISE
6750 NE COLUMBIA BLVD.
PORTLAND, OR 97218

OR ECSI **S110764075**
N/A

Relative:
Higher

Actual:
76 ft.

ECSI:

State ID Number:	5477
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	118680
Further Action:	258
Lat/Long (dms):	45 34 2.60 / -122 35 35.20
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	17
Qtr Section:	CA
Tax Lots:	T.L. 800 of T1N/R2E-S17C
Size:	0.60 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	02/02/2012
Created Date:	01/19/2011
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Medium
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported
Alias Name:	Alex Auto Repair
Alias Name:	General Auto Body LLC
Alias Name:	Genuine Oregon Products
Alias Name:	Karyeta Auto
Alias Name:	One Stop Auto Care
Alias Name:	Pacific West Coast Foods
Alias Name:	Sergy Auto Body
Alias Name:	V N Autobody & Repair

Narrative:

NARR ID:	5752770
NARR Code:	Site Contacts
Created By:	SFORTUN
Created Date:	01/28/2011
Updated By:	SFORTUN
Updated Date:	01/28/2011
Decode for NarcdID:	Site Contacts
NARR Comments:	P&L Enterprise Attn: Lev & Olga Poljakov, Registrants 1217 Blair Road Washougal, WA 98671-8463 360-335-8641

NARR ID:	5753529
NARR Code:	Contamination
Created By:	SFORTUN

P&L ENTERPRISE (Continued) **S110764075**

Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Contamination
NARR Comments: Suspected hazardous substances associated with current operations include petroleum products (gasoline, diesel, waste oil - including PAHs, BTEX), toxic metals, asbestos, and parts cleaning solvents (PCE, TCE, TCA).

NARR ID: 5753530
NARR Code: Disposals
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Disposals
NARR Comments: Prior to 2007, site wastewaters are believed to have been directed to as many as 2 on-site cesspools and up to six on-site drywells. In 2007, site wastewaters were redirected to the city sanitary sewers. However, some of the site stormwater runoff appears to drain to a city catchbasin along the southern edge of NE Columbia Boulevard. This catchbasin drains to a sump located beneath NE Columbia Boulevard. It is not known if the site drywells and cesspools are still present, or whether some of the site's wastewaters may still discharge to these.

NARR ID: 5753542
NARR Code: Data Sources
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/30/2011
Decode for NarcdID: Data Sources
NARR Comments: Local groundwater test data available through USEPA's STORET and DEQ LASAR databases (Bernie Calcagno well; LASAR Station Identifier 14754; STORET Station Identifier EMULTCO10 / Organization Code 21ORWELL). Whitaker and Columbia Slough sediment test data available through February 1995 Columbia Slough Screening Level Risk Assessment report: Columbia Slough Sediment Project, Screening Level Risk Assessment Report, City of Portland, Bureau of Environmental Services. 1995a. February 1995.

NARR ID: 5753531
NARR Code: General Site Description
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: General Site Description
NARR Comments: A 0.6-acre paved tax lot with three on-site buildings. Located in a commercial/industrial area along NE Columbia Boulevard, between NE 66th Ave. and NE Cully Blvd.

NARR ID: 5753532
NARR Code: Hazardous Substance/Waste Types
Created By: SFORTUN
Created Date: 08/29/2011

P&L ENTERPRISE (Continued) **S110764075**

Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Potential petroleum products (gasoline, diesel fuel, waste oil, petroleum solvents - including BTEX and PAHs), toxic metals, asbestos, and parts cleaning solvents (potential PCE, TCE, TCA).

NARR ID: 5753534
NARR Code: Project Issues Summary
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Project Issues Summary
NARR Comments: The site iwas constructed over shallow alluvium, and was not serviced by the municipal sanitary sewers until 2006. City plumbing records indicate that the site had up to six on-site drywells and up to two on-site cesspools. It is not known if the cesspools and drywells have been decommissioned, or whether sludges, contaminated soils, and/or contaminated groundwater may be associated with them. There is recent photogragraphic evidence of site runoff entering a city-owned catchbasin along the southern edge of NE Columbia Boulevard. This catchbasin feeds a sump located beneath NE Columbia Boulevard. It is not known if current or past site activities may have contaminated local alluvium or groundwater.

NARR ID: 5753535
NARR Code: Land Use (Current/Reasonably Likely)
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Land Use (Current/Reasonably Likely)
NARR Comments: The site is located within a predominantly industrial/commercial area, although recreational facilities and residential properties in addition to Whitaker and Columbia Sloughs are also present. The site is located within 0.5-mile of the Wellhead Protection Area for the Portland Water Bureau’s Columbia South Shore Wellfield.

NARR ID: 5752772
NARR Code: Site Location
Created By: SFORTUN
Created Date: 01/28/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Site Location
NARR Comments: Tax Lot 800 of T1N/R2E-S17CA. Located along the south side of NE Columbia Blvd., between NE 66th Avenue and NE Cully Blvd.

NARR ID: 5753538
NARR Code: Manner of Release
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Manner of Release
NARR Comments: Potential for spills, surface runoff, and/or discharge to underground

P&L ENTERPRISE (Continued) **S110764075**

injection control devices (cesspools and/or drywells).

NARR ID: 5753539
NARR Code: Media Contamination
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Media Contamination
NARR Comments: Local groundwater and Whitaker Slough surface water sediments are contaminated with PCE and TCE from an unknown source or sources. Both groundwater and surface water sediments have also contained with lower concentrations of other hazardous substances including BTEX consitiuents and toxic metals.

NARR ID: 5752771
NARR Code: Site Ownership
Created By: SFORTUN
Created Date: 01/28/2011
Updated By: SFORTUN
Updated Date: 01/28/2011
Decode for NarcdID: Site Ownership
NARR Comments: Lev Poljakov 1217 Blair Road Washougal, WA 98671-8463 360-335-8641

NARR ID: 5753540
NARR Code: Pathways Other Hazards
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Potential for human ingestion, vapor inhalation, or dermal contact with contaminaed well water. Potential for human dermal contact with, or incidental ingestion of, contaminated surface water sediments, or human consumption of contaminated fish tissue from Whitaker Slough. Potential degredation of groundwater used as a Community Water Supply. Potential ecological degredation of Whitaker and Columbia Sloughs.

NARR ID: 5753541
NARR Code: Health Threats
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Health Threats
NARR Comments: Potential for human ingestion, vapor inhalation, or dermal contact with contaminaed well water. Potential for human dermal contact with, or incidental ingestion of, contaminated surface water sediments, or human consumption of contaminated fish tissue from Whitaker Slough. Potential degredation of groundwater used as a Community Water Supply. Potential ecological degredation of Whitaker and Columbia Sloughs.

NARR ID: 5753536
NARR Code: Water Use (Current/Reasonably Likely)
Created By: SFORTUN

P&L ENTERPRISE (Continued) **S110764075**

Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Water Use (Current/Reasonably Likely)
NARR Comments: The site lies within 0.5-mile of the Wellhead Protection Area for Portland Water Bureau's Columbia South Shore Wellfield. PWB has 8 community water supply wells within 1.25- to 2.0 miles downgradient from the site. The nearest domestic well is located at the Oregon Fresh Farms facility, located directly downgradient, across NE Columbia Boulevard, from the site. This well has historically been used for washing fresh produce prior to marketing. Future use of the well is not known. One irrigation well is also located at the Oregon Fresh Farms site; two or three irrigation wells are located somewhat farther downgradient at the Colwood National Golf Course. Whitaker Slough and Columbia Slough are located between Oregon Fresh Farms and the Colwood National Golf Course. Both sloughs are known to have sediment contamination which may be adversely affecting aquatic life.

NARR ID: 5753533
NARR Code: Site History
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Site History
NARR Comments: Site history in unknown prior to about 2000. Site is currently used by several lessees for automotive mechanical and body repair, and for auto sales.

NARR ID: 5753537
NARR Code: 1922
Created By: SFORTUN
Created Date: 08/29/2011
Updated By: SFORTUN
Updated Date: 08/29/2011
Decode for NarcdID: Current Site Summary Statement
NARR Comments: An Expanded Preliminary Assessment (XPA) is needed to determine if the site's current or past activities may have contaminated sunsurface soils and/or groundwater. The site may still have unregistered cesspools and drywells (UICs) that likely penetrate to underlying shallow alluvium.

Permit:
Permit Agency: DEQ/UST
Permit Number: 5477
Permit Type: UST
Comments: Linnton Chip Export Facility

Permit Agency: DEQ/UST
Permit Number: 5477
Permit Type: UST
Comments: Linnton Chip Export Facility

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 01/19/2011
Rank Value: Not reported

P&L ENTERPRISE (Continued) **S110764075**

Cleanup Flag: False
Created Date: 01/19/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9510
Region: Northwestern Region
Complete Date: 08/29/2011
Rank Value: 83
Cleanup Flag: False
Created Date: 08/29/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Expanded Preliminary Assessment recommended (XPA)
Further Action: Medium
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 08/29/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/29/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9449
Region: Northwestern Region
Complete Date: 08/29/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/29/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: 0
Comments: Not reported

Action ID: 9521
Region: Northwestern Region
Complete Date: 09/02/2011
Rank Value: Not reported
Cleanup Flag: False

P&L ENTERPRISE (Continued) **S110764075**

Created Date: 09/02/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: OPTN
Further Action: 0
Comments: Not reported

Operations:

Operation Id: 135723
Operation Status: Active
Common Name: Karyeta Auto
Yrs of Operation: 2003 -2011
Comments: 503-288-2886 503-698-1301 503-281-6864
Updated Date: 01/28/2011
Updated By: SFORTUN
Decode for OpstatID: Active
Operations SIC Id: 199314
SIC Code: 5599
Created By: SFORTUN
Created Date: 08/29/2011

Operation Id: 135724
Operation Status: Active
Common Name: Sergy Auto Body
Yrs of Operation: 2007 - 2011
Comments: 503-287-7068
Updated Date: 01/28/2011
Updated By: SFORTUN
Decode for OpstatID: Active
Operations SIC Id: 199318
SIC Code: 7531
Created By: SFORTUN
Created Date: 08/29/2011

Operation Id: 135725
Operation Status: Active
Common Name: V N Autobody & Repair
Yrs of Operation: 2007 - 2011
Comments: 503-284-6844
Updated Date: 01/28/2011
Updated By: SFORTUN
Decode for OpstatID: Active
Operations SIC Id: 199319
SIC Code: 7531
Created By: SFORTUN
Created Date: 08/29/2011

Operation Id: 135726
Operation Status: Active
Common Name: General Auto Body LLC
Yrs of Operation: 2006 - 2011
Comments: 503-288-2886
Updated Date: 01/28/2011
Updated By: SFORTUN
Decode for OpstatID: Active
Operations SIC Id: 199316

P&L ENTERPRISE (Continued) **S110764075**

SIC Code:	7531
Created By:	SFORTUN
Created Date:	08/29/2011
Operation Id:	135727
Operation Status:	Inactive
Common Name:	Alex Auto Repair
Yrs of Operation:	2005 - 2007
Comments:	503-282-9989
Updated Date:	01/28/2011
Updated By:	SFORTUN
Decode for OpstatID:	Inactive
Operations SIC Id:	199315
SIC Code:	7500
Created By:	SFORTUN
Created Date:	08/29/2011
Operation Id:	135728
Operation Status:	Inactive
Common Name:	One Stop Auto Care
Yrs of Operation:	1990-2005
Comments:	503-281-0852
Updated Date:	01/28/2011
Updated By:	SFORTUN
Decode for OpstatID:	Inactive
Operations SIC Id:	199317
SIC Code:	7500
Created By:	SFORTUN
Created Date:	08/29/2011
Operation Id:	135729
Operation Status:	Inactive
Common Name:	Genuine Oregon Products
Yrs of Operation:	1993 - 1995
Comments:	Not reported
Updated Date:	01/28/2011
Updated By:	SFORTUN
Decode for OpstatID:	Inactive
Operation Id:	135730
Operation Status:	Inactive
Common Name:	Pacific West Coast Foods
Yrs of Operation:	1991 - 1995
Comments:	Not reported
Updated Date:	01/28/2011
Updated By:	SFORTUN
Decode for OpstatID:	Inactive

79
SW
1/2-1
0.523 mi.
2764 ft.

PARKROSE AUTO CENTER
5242 NE COLUMBIA BLVD.
PORTLAND, OR 97218

OR ECSI **S112504468**
N/A

Relative:
Higher

Actual:
64 ft.

ECSI:

State ID Number:	5770
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	126046
Further Action:	0
Lat/Long (dms):	45 34 10.60 / -122 36 30.20
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	18
Qtr Section:	DB
Tax Lots:	900
Size:	0.44 acre
NPL:	False
Orphan:	False
Updated By:	SMILLER
Update Date:	05/07/2013
Created Date:	12/05/2012
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported

Narrative:

NARR ID:	5754354
NARR Code:	Site Contacts
Created By:	SMILLER
Created Date:	12/05/2012
Updated By:	SMILLER
Updated Date:	12/05/2012
Decode for NarcdID:	Site Contacts
NARR Comments:	Park Rose Auto Center: Owner- Mo Anotta Property Owner: JOHANN & ILEANA JANTOS 5242 NE COLUMBIA BLVD Portland, OR 97218 Portland BES: Marty Anderson (503) 823-5558 Interested Party-Neighbor: Steven Moultrie Metrolift Equipment 5400 NE COlumbia Blvd Portland OR 97218 503-309-6000

NARR ID:	5754355
NARR Code:	Contamination
Created By:	SMILLER
Created Date:	12/05/2012
Updated By:	SMILLER
Updated Date:	12/05/2012
Decode for NarcdID:	Contamination
NARR Comments:	[12/5/12 SAM/SA] Car crushing occuring on site without appropriate

PARKROSE AUTO CENTER (Continued) **S112504468**

controls. Likely petroleum and other related hazardous waste releases to onsite soils and runoff to city storm drains in NE Columbia Blvd-which empties into the Columbia Slough.

NARR ID: 5754599
NARR Code: Data Sources
Created By: SMILLER
Created Date: 04/22/2013
Updated By: SMILLER
Updated Date: 05/07/2013
Decode for NarcdID: Data Sources
NARR Comments: [4/22/13 SAM/SA] city of Portland industrial stormwater program files and photos [5/7/13 SAM/SA] DEQ Hazardous Waste Files and photos

NARR ID: 5754357
NARR Code: Pathways Other Hazards
Created By: SMILLER
Created Date: 12/05/2012
Updated By: SMILLER
Updated Date: 12/05/2012
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: [12/5/12 SAM/SA] Possible pathways include vapor intrusion, direct contact and stormwater runoff to ecologicaly sensitive areas.

NARR ID: 5754356
NARR Code: Remedial Action
Created By: SMILLER
Created Date: 12/05/2012
Updated By: SMILLER
Updated Date: 04/01/2014
Decode for NarcdID: Remedial Action
NARR Comments: [12/5/12 SAM/SA] Site evaluation recommended, to determine if activities have caused a release of hazardous substances that pose a threat to human health and the environment, especially to the Whitaker Slough area. [5/7/12 SAM/SA] DEQ Hazardous Waste inspected the facility on January 31, February 11 and April 18, 2013. On May 3, 2013 a warning letter was issued for two violations; failing to immediately clean up releases of used oil and failing to correctly label containers of used oil.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 12/05/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/05/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 12/05/2012

PARKROSE AUTO CENTER (Continued) **S112504468**

Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/05/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

O80 **MARTINEZ AUTO REBUILDERS** **OR ECSI** **S111766398**
SSW **5916 NE PORTLAND HWY.** **N/A**
1/2-1 **PORTLAND, OR 97218**
0.529 mi.
2794 ft. **Site 2 of 2 in cluster O**

Relative:
Higher

Actual:
78 ft.

ECSI:
State ID Number: 5690
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 122851
Further Action: 0
Lat/Long (dms): 45 34 .80 / -122 36 6.50
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: DA
Tax Lots: 2800, 2900 & 3000
Size: 0.4 acres
NPL: False
Orphan: False
Updated By: SMILLER
Update Date: 11/05/2014
Created Date: 02/07/2012
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported

Narrative:
NARR ID: 5753836
NARR Code: Site Contacts
Created By: SMILLER
Created Date: 02/07/2012
Updated By: SMILLER
Updated Date: 02/07/2012
Decode for NarcdID: Site Contacts
NARR Comments: Property Owner: Delmy Alarcon 3550 SW Victoria Pl Gresham, OR 97080

MARTINEZ AUTO REBUILDERS (Continued) **S111766398**

Possible site operator: Louis Michoacano Martinez Auto
B(503)-459-4482 Martinez Auto Rebuilders (503) 445-2074 no answer at
either phone number and no answering service available

NARR ID: 5753838
NARR Code: Contamination
Created By: SMILLER
Created Date: 02/07/2012
Updated By: SMILLER
Updated Date: 02/07/2012
Decode for NarcdID: Contamination
NARR Comments: [SAM/SAS 2/7/12] Concerns of improper waste handling associated with auto rebuiding and contamination on the ground. Several puddles of oil on the property and turbid offsite discharge with a light sheen moving along NE Portland Hwy to NE 60th.

NARR ID: 5753837
NARR Code: Data Sources
Created By: SMILLER
Created Date: 02/07/2012
Updated By: SMILLER
Updated Date: 02/07/2012
Decode for NarcdID: Data Sources
NARR Comments: City of Portland Inspection: approximately November 21, 2011

NARR ID: 5753841
NARR Code: General Site Description
Created By: SMILLER
Created Date: 02/07/2012
Updated By: SMILLER
Updated Date: 02/07/2012
Decode for NarcdID: General Site Description
NARR Comments: [SAM/SAS 2/7/2012] site houses an auto rebuilder. Site completely fenced in late 2011 and appears to consist of gravel lots with some paved driveways.

NARR ID: 5754723
NARR Code: Hazardous Substance/Waste Types
Created By: SMILLER
Created Date: 06/17/2013
Updated By: SMILLER
Updated Date: 06/17/2013
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: suspected hazardous substances include petroleum, PAHs, PCBs, and metals

NARR ID: 5753839
NARR Code: Site History
Created By: SMILLER
Created Date: 02/07/2012
Updated By: SMILLER
Updated Date: 02/07/2012
Decode for NarcdID: Site History
NARR Comments: [SAM/SAS 2/7/12] Arieal photos show many cars on property from 2001-2004. No cars present in 2005, but various soil stains are visible. Cars return in 2006-to present(late 2011).

MARTINEZ AUTO REBUILDERS (Continued) **S111766398**

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 02/07/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/07/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 02/07/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/07/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

81
WSW
1/2-1
0.546 mi.
2883 ft.

HERTZ EQUIPMENT RENTAL FACILITY **OR CRL** **S102078879**
4939 NE COLUMBIA BLVD. **OR ECSI** **N/A**
PORTLAND, OR 97218 **OR AST**
OR HSIS
OR UIC

Relative:
Higher

Actual:
55 ft.

CRL:
Facility ID: 1403
Location ID: 8939
Status Code: LIS
Facility Status: State Basic Preliminary Assessment recommended (PA)
Lat/Long: 45.5705 / -122.6107

ECSI:
State ID Number: 1403
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 832
Investigation: Listed on the CRL/Inventory
FACA ID: 8939
Further Action: 260
Lat/Long (dms): 45 34 13.80 / -122 36 38.50
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 05/02/2006
Created Date: 07/14/1993
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Low
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Owner, operator or other party under state or federal authority

Hazardous Release:
Substance ID.: 122012
Haz Release ID: 383653
Qty Released: unknown
Date Released: unknown
Update Date: 07/14/1993
Update By: Not reported
Substance Code: ECD275
Substance Name: TOTAL PETROLEUM HYDROCARBONS (TPH)
Substance Abbrev.: Not reported
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 344110
Feature Id: Not reported
Hazard Release Id: 383653
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 5,500 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:
NARR ID: 5733106

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (7/14/93 KPD/SAS) Carson Oil Company was refilling an above-ground storage tank with diesel in May 1991 when the hose connection ruptured. Approximately 250 gallons of diesel spilled onto the ground. Most was sopped up. However, one of eight confirmation samples found high levels of TPH. Further sampling in the area found a degraded heavy oil, two feet below ground, along with an oil filter, lube pan, air filter, and hydraulic lines, but no diesel. In correspondence, DEQ agreed that the diesel spill appeared to be cleaned up and that the observed contamination appeared to be the result of past practices at the site.

NARR ID: 5733107
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: July 1992 Soil Investigation Report

NARR ID: 5733108
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: petroleum hydrocarbons

NARR ID: 5733109
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Past practices. Time of release unknown.

NARR ID: 5733110
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: The spill occurred on a gravel surface over bare ground. Groundwater has not been sampled, and depth to groundwater is unknown. The site is adjacent to a school and near the Columbia Slough.

NARR ID: 5733111
NARR Code: Remedial Action

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 05/22/2003
Decode for NarcdID: Remedial Action
NARR Comments: (7/14/93 KPD/SAS) The known contamination apparently has not been removed. Site Assessment recommends that the site owner/operator enter the Voluntary Cleanup program (VCP). If the owner/operator does not enter the VCP, Site Assessment recommends that a basic state Preliminary Assessment (PA) be performed to determine the history of waste disposal activities on-site. Because the known contamination is limited in extent, Site Assessment recommends that the PA be given a low priority. (11/10/97 LSK) Site re-evaluated as part of review of all sites within the Columbia Slough Study Area. Located south of the Lower Slough.

Administrative Action:
Action ID: 9496
Region: Northwestern Region
Complete Date: 12/30/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Low
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 12/30/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: 0
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Action ID: 9448
Region: Headquarters
Complete Date: 07/13/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9488
Region: Headquarters
Complete Date: 07/13/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing on Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Headquarters
Complete Date: 07/15/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 07/14/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9465

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Region: Headquarters
Complete Date: 05/10/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 07/19/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Low
Comments: Not reported

Action ID: 9437
Region: Headquarters
Complete Date: 07/15/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Headquarters
Complete Date: 07/16/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9521
Region: Northwestern Region

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Complete Date: 03/28/1994
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/22/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: OPTN
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 132728
Operation Status: Active
Common Name: Hertz Equipment Rental Facility
Yrs of Operation: unknown
Comments: Heavy equipment rental
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Active

AST:
Facility Id: 021052
Hazardous Substance: DIESEL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: Paul
Direct Site Phone: 5032875789
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 021052
Hazardous Substance: PROPANE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: Paul
Direct Site Phone: 5032875789
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Status: Not reported

Facility Id: 021052
Hazardous Substance: USED LUBE OIL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: Paul
Direct Site Phone: 5032875789
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

HSIS:

Facility ID:	021052
Department Or Division Of Company:	HERC RENTALS INC
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	532412
NAICS Desc 1:	CONST, MINING, & FORESTRY MACHINERY & EQP
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	DAN THEDA
Business Phone:	5032875789
Mailing Address:	216 16TH ST STE 1500
Mailing City:	DENVER
Mailing State:	CO
Mailing Zip:	80202
No. of Employees:	16
Day Phone:	5032875789
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	DAN THEDA
Emergency Procedure:	MGRS OFFICE
Business Type:	EQUIPMENT RENTAL
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	GOLD GAS C-25
Physical Description:	GAS
Case Number:	7440371
Facility Id:	021052
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ARGON/CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	GOLD GAS C-25
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	021052
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	PROPANE
Physical Description:	GAS
Case Number:	74986
Facility Id:	021052
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Chemical Abstract Service Identifier Number:	74986
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	USED LUBE OIL
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	021052
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	HYDROCARBON BASED OILS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	USED LUBE OIL
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	DIESEL
Physical Description:	LIQUID
Case Number:	68476346
Facility Id:	021052
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1202
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	DIESEL
United Nations/north America 4 Digit Class Number:	1202
Chemical Abstract Service Identifier Number:	68476346
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	021052
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Chemical Abstract Service Identifier Number:	74862
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

OR UIC:

UIC Well #:	1
Type:	5D2
Type Description:	Storm Water Drainage
Status:	Active
UIC Number:	10538
Facility Status:	Registered & RA
Lat/Long:	45.5704 / -122.6108

UIC Well #:	2
Type:	5D4
Type Description:	Industrial Storm Water Drainage
Status:	Not Installed
UIC Number:	10538
Facility Status:	Registered & RA
Lat/Long:	45.5704 / -122.6108

UIC Well #:	3
Type:	5D2
Type Description:	Storm Water Drainage
Status:	Active
UIC Number:	10538
Facility Status:	Registered & RA
Lat/Long:	45.5704 / -122.6108

UIC Well #:	4
Type:	5D2
Type Description:	Storm Water Drainage
Status:	Active
UIC Number:	10538
Facility Status:	Registered & RA

HERTZ EQUIPMENT RENTAL FACILITY (Continued) **S102078879**

Lat/Long: 45.5704 / -122.6108

UIC Well #: 5
Type: 5X28
Type Description: Motor Vehicle Waste Disposal Wells
Status: Formal Closure
UIC Number: 10538
Facility Status: Registered & RA
Lat/Long: 45.5704 / -122.6108

UIC Well #: 6
Type: 5W32
Type Description: Septic Systems (drainfield Disposal Method)
Status: Formal Closure
UIC Number: 10538
Facility Status: Registered & RA
Lat/Long: 45.5704 / -122.6108

82
SW
1/2-1
0.557 mi.
2941 ft.

FERNLEY TIRE FIRE
5411 NE PORTLAND HWY
PORTLAND, OR 97218

OR ECSI **1006857516**
FINDS **N/A**
OR UIC

Relative:
Higher

Actual:
90 ft.

ECSI:
State ID Number: 1181
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: No Further Action
FACA ID: 8938
Further Action: 0
Lat/Long (dms): 45 34 7.00 / -122 36 27.00
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 06/23/2015
Created Date: 03/06/1992
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Not reported

Hazardous Release:
Substance ID.: 121639

FERNLEY TIRE FIRE (Continued) **1006857516**

Haz Release ID: 383257
Qty Released: unknown
Date Released: unknown
Update Date: 03/06/1992
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 345556
Feature Id: Not reported
Hazard Release Id: 383257
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 240 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121679
Haz Release ID: 383258
Qty Released: unknown
Date Released: unknown
Update Date: 03/06/1992
Update By: Not reported
Substance Code: 7440-66-6
Substance Name: ZINC
Substance Abbrev.: Not reported
Substance Alias ID: 319302
Sub Alias Name: ZN
Sampling Result ID: 345557
Feature Id: Not reported
Hazard Release Id: 383258
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False

FERNLEY TIRE FIRE (Continued) **1006857516**

Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1500 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:
NARR ID: 5731977
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (6/3/92 AGG) On 7/5/89 a fire occurred at 5411 NE Portland. The fire spread to nearby buildings and to a large pile of tires (approximately 20,000). Runoff water from fire fighting may have spread pyrolytic oil contamination to soil on-site. Several buildings and burnt tires were removed in 1989.

NARR ID: 5731978
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: lead, zinc, possibly pyrolytic oil

NARR ID: 5731979
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (6/3/92 AGG) No further action recommended. Lead and zinc in soil are below Soil Cleanup Level standards for industrial sites.

Administrative Action:
Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported

FERNLEY TIRE FIRE (Continued) **1006857516**

Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 03/05/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 03/05/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Not reported
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 06/04/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9456
Region: Northwestern Region
Complete Date: 06/03/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: 0
Comments: Not reported

FERNLEY TIRE FIRE (Continued) **1006857516**

Action ID: 9437
Region: Northwestern Region
Complete Date: 06/03/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: 0
Comments: Not reported

Action ID: 9427
Region: Northwestern Region
Complete Date: 06/03/1992
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/06/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Excluded from confirmed release definition
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 132487
Operation Status: Unknown
Common Name: Fernley Tire Fire
Yrs of Operation: Not reported
Comments: Not reported
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Unknown

FINDS:

Registry ID: 110014199474

Environmental Interest/Information System
OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

OR UIC:
UIC Well #: 1
Type: 5D2

FERNLEY TIRE FIRE (Continued) **1006857516**

Type Description: Storm Water Drainage
Status: Active
UIC Number: 13400
Facility Status: Not Registered
Lat/Long: 45.568699 / -122.6074

83
NNW
1/2-1
0.562 mi.
2966 ft.

PORTLAND INTERNATIONAL AIRPORT TAXIWAY F **OR ECSI** **S114401054**
PORTLAND INTERNATIONAL AIRPORT **OR VCP** **N/A**
PORTLAND, OR 97218

Relative:
Lower

Actual:
14 ft.

ECSI:
State ID Number: 5849
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 129935
Further Action: 0
Lat/Long (dms): 45 35 7.80 / -122 36 11.50
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 7
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 12/19/2013
Created Date: 10/16/2013
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: Taxiway F area
Alias Name: South Cargo Reload Rack

Narrative:
NARR ID: 5755887
NARR Code: 1922
Created By: GWISTAR
Created Date: 11/05/2015
Updated By: GWISTAR
Updated Date: 11/05/2015
Decode for NarcdID: Current Site Summary Statement
NARR Comments: [Nov. 2015] See also ECSI #2240 and 5524.

Administrative Action:
Action ID: 9424
Region: Not reported

PORTLAND INTERNATIONAL AIRPORT TAXIWAY F (Continued) **S114401054**

Complete Date: 10/16/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/16/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/16/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

VCS:
ECS Site ID: 5849
Facility Size: Not reported
Action: SITE INVESTIGATION
Start Date: 10/16/2013
End Date: Not reported
Facility Status: Active
Program: VCP
Latitude: 45.5855
Longitude: -122.6032

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84 **PORTLAND AIR BASE** **FUDS** **1007211235**
NNE **N/A**
1/2-1 **PORTLAND, OR**
0.569 mi.
3006 ft.

Relative:
Lower

Actual:
18 ft.

FUDS:
EPA Region: 10
Congressional District: 03
FUDS Number: F10OR0538
State: OR
Facility Name: PORTLAND AIR BASE
Fiscal Year: 2013
City: PORTLAND
Federal Facility ID: OR9799F0342
Telephone: 816-389-3072
INST ID: 56622
County: MULTNOMAH
RAB: Not reported
CORPS_DIST: Kansas City District (NWK)

PORTLAND AIR BASE (Continued) **1007211235**

NPL Status: Not Listed
CTC: 589.10000000000002
Current Owner: Other
Future Prog: Not reported
Description: Portland Air Base, FUDS Property Number F10OR0538, is located in Portland, Multnomah County, Oregon. The FUDS is at the present-day Portland International Airport. The FUDS includes 1,083 land acres and is positioned in four separate land parcels located in Township 1 North, Range 1 East, Section 1, and Township 1 North, Range 2 East, Sections 5, 6, 7, 8, 17, and 18.Two MRSs, the Shoot-in Butt MRS and the Burial Site MRS, have been identified at Portland Air Base.
Current Program: Not reported
History: Construction of the Portland-Columbia Airport at the location of the Portland Air Base FUDS property was begun as a Works Progress Administration project in 1936, and the facility was opened by the Port of Portland as a commercial airport late in 1940 (Port of Portland, 2011). In August and September of 1940, the Army developed plans identifying Portland as one of several municipal airports to be used as tactical air bases, and in the first half of 1941 began operations at Portland Army Air Base (later known as Portland Air Base). Army expenditures were used to widen runways and construct additional taxiways and lighting. The air base was expanded in 1942, when land for a cantonment area and ammunition storage point was acquired. Throughout its life as a military air base, commercial air traffic continued as the airport facilities were shared with the Portland Airport.During World War II, Portland Air Base was used to train fighter pilots and also served as a base for coastal defense. The base was initially assigned to the Second Air Force, but Army reorganization resulted in the Fourth Air Force assuming control of the base on January 26, 1942. Historical documentation included in the ASR indicates that the 432nd Army Air Force Base Unit, activated in April of 1944, was the largest unit on base, with a primary mission of training replacement fighter pilots for overseas duty. The ASR reports that the training mission of the air base was reduced in 1944, with increased emphasis on aircraft repair, and that by November 1944, the primary mission was operation of an aircraft modification center. On March 8, 1945, Headquarters of the Fourth Air Force placed Portland Air Base on a reduced mission status, operating as a repair depot and modification center for P-38 aircraft. By the end of 1945, the base was in the process of closing, and its primary mission was discharging servicemen.
Latitude Degree: 45
Latitude Minute: 35
Latitude Second: 22
Latitude Direction: N
Longitude Degree: -122
Longitude Minute: 36
Longitude Second: 14
Longitude Direction: E

FUDS:
Inst ID: 56622
FUDS Number: F10OR0538
Facility Name: PORTLAND AIR BASE
PHASE: 4
ARC: Y
DIST: NWK
MMRP: Y

PORTLAND AIR BASE (Continued) **1007211235**

MRA ID:	F10OR053801R01
Inst ID:	56622
FUDS Number:	F10OR0538
Facility Name:	PORTLAND AIR BASE
PHASE:	4
ARC:	Y
DIST:	NWK
MMRP:	Y
MRA ID:	F10OR053801R01

FUDS:

Inst ID:	56622
FUDS Number:	F10OR0538
Facility Name:	PORTLAND AIR BASE
PHASE:	4
Site ID:	01
DIST:	NWK
MMRP:	Y
MRA ID:	F10OR053801R01
PROJ NO:	F10OR053801

Inst ID:	56622
FUDS Number:	F10OR0538
Facility Name:	PORTLAND AIR BASE
PHASE:	4
Site ID:	01
DIST:	NWK
MMRP:	Y
MRA ID:	F10OR053801R01
PROJ NO:	F10OR053801

85
WSW
1/2-1
0.572 mi.
3022 ft.

Relative:
Higher

Actual:
40 ft.

HALTON CO
6654 NE 47TH AVE
PORTLAND, OR 97218

OR ECSI **1004769828**
OR AST **ORD009415803**
OR INST CONTROL
OR VCP
RCRA NonGen / NLR
FINDS
ECHO
OR HSIS
OR MANIFEST
OR UIC

ECSI:

State ID Number:	1503
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	No Further Action
FACA ID:	1065
Further Action:	0
Lat/Long (dms):	45 34 17.40 / -122 36 46.40
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported

HALTON CO (Continued) **1004769828**

Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: BD
Tax Lots: 100, 400, 1500
Size: 12.16 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 06/15/2017
Created Date: 01/31/1994
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Not reported
Alias Name: Sulzer Escher Wyss
Alias Name: Halton East Campus
Alias Name: Voith Paper

Narrative:
NARR ID: 5753675
NARR Code: Site Contacts
Created By: EMCDONN
Created Date: 11/01/2011
Updated By: EMCDONN
Updated Date: 11/01/2011
Decode for NarcdID: Site Contacts
NARR Comments: Mark Fahey, Halton Company VP. 15171 SW Bangy Road, Lake Owsego, OR 97035. mark.fahey@haltonco.com. 503.208.1573 Boni Halton, Halton Company. 15171 SW Bangy Road, Lake Owsego, OR 97035. bonihalton@msn.com

NARR ID: 5733855
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: EMCDONN
Updated Date: 04/23/2014
Decode for NarcdID: Contamination
NARR Comments: (5/1/1998 LSK/SAS) The Sulzer Escher Wyss facility repairs paper making machinery and performs other light industrial work. Incoming parts are steam cleaned or dipped in a hot tank and then steam cleaned. The facility has been on the site for almost 35 years. The company received a Notice of Noncompliance (NON) from DEQ in February 1995 for a storm water discharge violation based on pH. The facility has generated hazardous waste in the past in the form of waste coolant sludge and tank sludge containing chromium and lead. A small waste oil spill occurred in September 1993. It is reported that no oil was spilled beyond a pavement area. (04.23.14 EKM) The Halton Company purchased the property in 2005, also known as the Halton East Campus. The Halton Company entered the DEQ voluntary cleanup program in June 2011 and a Consent Judgment with DEQ in 2012 to resolve in-water contamination related to the Columbia Slough. Halton Co. intends to investigate environmental contamination at their Main Campus and East Campus (formerly known as Sulzer or Voith)

HALTON CO (Continued) **1004769828**

properties, and conduct a source control evaluation. DEQ approved a stormwater source control evaluation work plan for the Halton Properties in April 2013. Conducting stormwater sampling initiated spring 2013. DEQ approved a Remedial Investigation Work Plan in April 2014.

NARR ID: 5733856
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: chromium, lead, waste oil

NARR ID: 5749246
NARR Code: Manner of Release
Created By: MGREENB
Created Date: 05/03/2007
Updated By: MGREENB
Updated Date: 05/03/2007
Decode for NarcdID: Manner of Release
NARR Comments: Evaluation of the UIC indicated petroleum hydrocarbon, solvent, chromium and lead contamination.

NARR ID: 5733857
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Sulzer Escher Wyss is located south of the Whitaker Slough and east of the Buffalo Slough. Sampling of Slough sediments by the City of Portland has identified elevated levels of lead and chromium in the Whitaker Slough and elevated levels of chromium in the Buffalo Slough. A Nov. 1991 storm drainage plan for the Sulzer site shows two drain outfalls to the Columbia Slough, one of which is a private storm drain that leaves from two different site buildings. A storm water discharge permit was issued to Sulzer Wyss in October 1993.

NARR ID: 5745082
NARR Code: Remedial Action
Created By: GWISTAR
Created Date: 06/02/2004
Updated By: EMCDONN
Updated Date: 04/23/2014
Decode for NarcdID: Remedial Action
NARR Comments: (5/1/98 LSK/SAS) Available information documents that metals such as lead and chromium have been part of the waste stream at the Sulzer facility. There is no documentation of spills or illegal releases other than one oil spill to asphalt ,which appears to have been addressed, and the NON for a violation of pH. There are some inconsistencies in reporting of TCLP results for coolant sludge and a lack of information about how coolant sludge and waste from the hot tank may have been disposed. While contaminants found in the Slough, lead and chromium, were present in waste generated at the Sulzer

HALTON CO (Continued) **1004769828**

facility, there is no documentation of releases to the Slough from the site -- other than low levels of copper and zinc identified at part of one stormwater sampling event. On the other hand, wastewaters containing chromic acid were released to four deep dry wells on the immediately upgradient AB Finishing Tech site (ECSI #871) from at least 1972 until 1990. A drinking water well used by AB Finishing was sampled in 1988 and contained chromium at 265 ug/l. Sampling of the well in 1993 found 18 ug/l total chromium and 20 ug/l hexavalent chromium. The Sulzer Escher Wyss site is recommended for no further action. This recommendation could change and additional site investigation could be considered if future sampling in the Columbia Slough indicates concerns that may be related to this site. Additional information should be requested on past practices, including the use of storm drains. (04.23.14 EKM) The Halton Company entered the DEQ voluntary cleanup program in June 2011 and a Consent Judgment with DEQ in 2012 to resolve in-water contamination related to the Columbia Slough. Halton Co. intends to investigate environmental contamination at their Main Campus and East Campus (formerly known as Sulzer or Voith) properties, and conduct a source control evaluation. DEQ approved a stormwater source control evaluation work plan for the Halton Properties in April 2013. Conducting stormwater sampling initiated spring 2013. DEQ approved a Remedial Investigation Work Plan in April 2014.

NARR ID: 5753676
NARR Code: 1922
Created By: EMCDONN
Created Date: 11/01/2011
Updated By: GWISTAR
Updated Date: 06/21/2017
Decode for NarcdID: Current Site Summary Statement
NARR Comments: [June 2017] DEQ has determined no No Further Action is required for Halton Voith site (ECSI #1503) and Halton Co. site (ECSI #121) subject to conditions. The Halton Co. completed a remedial investigation and source control evaluation, under a Voluntary Cleanup Agreement with DEQ. In 2012, the Halton Co. also entered into a settlement with DEQ to resolve liability for contribution to contamination of Whitaker Slough and Ponds from the properties. The source control evaluation performed included stormwater monitoring and site improvements to remove and control contaminant sources. The evaluation and actions, in addition to payment into DEQ s settlement account, fulfill requirements of the 2012 settlement.

 At the Halton Voith site, residual contamination will managed through institutional controls. Institutional controls include implementing a contaminated media management plan during subsurface work, ongoing stormwater controls, and restrictions on groundwater use. The DEQ Staff Memorandum in support of a Conditional No Further Action determination presents the basis in greater detail for DEQ s recommended CNFA and can be downloaded from this website (see below), in addition to other site documents.

Site Control:
Site Control #: 1115
Control Number: 3
Begin Date: 06/14/2017
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: E. McDonnell, DEQ

HALTON CO (Continued) **1004769828**

Last Reviewed Date: Not reported
Last Update By: GWISTAR
Last Updated Date: 06/15/2017
Site Comment: DEQ s conditional NFA requires institutional controls to ensure continued protection of occupational workers and ongoing stormwater management controls. Required institutional controls include: a) implementation of the Contaminated Materials Management Plan; b) maintenance of caps and covers; c) restriction on groundwater use; and d) long-term stormwater management for continued source control. These control requirements have been incorporated into an Easement and Equitable Servitude (EES) for the Halton Co. site and recorded with the property deed. See also ECSI #121.

Administrative Action:
Action ID: 9519
Region: Northwestern Region
Complete Date: 05/05/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/25/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9440
Region: Northwestern Region
Complete Date: 06/23/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/05/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Letter Agreement
Further Action: 0
Comments: Not reported

Action ID: 9520
Region: Northwestern Region
Complete Date: 08/30/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 11/01/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: EXPANDED PRELIMINARY ASSESSMENT
Further Action: 0
Comments: Not reported

Action ID: 9484
Region: Northwestern Region

HALTON CO (Continued) **1004769828**

Complete Date: 04/28/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/13/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9524
Region: Northwestern Region
Complete Date: 04/28/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/28/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SCE
Further Action: 0
Comments: Not reported

Action ID: 9411
Region: Northwestern Region
Complete Date: 06/15/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/15/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: No Further Action (Conditional)
Further Action: 0
Comments: Not reported

Action ID: 9424
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Headquarters
Complete Date: 02/11/1994

HALTON CO (Continued) **1004769828**

Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: Not reported
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 05/01/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 05/01/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 05/01/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/03/2007
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 05/01/2007
Rank Value: Not reported

HALTON CO (Continued) **1004769828**

Cleanup Flag: False
Created Date: 05/03/2007
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 132834
Operation Status: Active
Common Name: Sulzer Escher Wyss
Yrs of Operation: 1960s to present
Comments: machinery repair
Updated Date: 06/04/2001
Updated By: jmw
Decode for OpstatID: Active
Operations SIC Id: 196745
SIC Code: 7699
Created By: Not reported
Created Date: 12/17/2002

AST:
Facility Id: 121681
Hazardous Substance: DIESEL FUEL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JEFF
Direct Site Phone: 5034881204
Report Class: Annual
Report Year: 2018
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 121681
Hazardous Substance: GASOLINE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JEFF
Direct Site Phone: 5034881204
Report Class: Annual
Report Year: 2018
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No

HALTON CO (Continued) **1004769828**

Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 121681
Hazardous Substance: PROPANE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JEFF
Direct Site Phone: 5034881204
Report Class: Annual
Report Year: 2018
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: Yes
Status: Not reported

Institutional Control:
Site Control Sequence #: 1115
Site Id: 1503
Control Sequence #: 3
Begin Date: 06/14/2017
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: E. McDonnell, DEQ
Last Review Date: Not reported
Last Updated By: GWISTAR
Last Updated Date: 06/15/2017
Group Sequence #: 2
Control Code: EES
Control Description: Easement Equitable Servitude
FK Type Code: 1
Group Code: PR
Group Description: Proprietary
Type Code: I
Type Description: Institutional
Comments: DEQ s conditional NFA requires institutional controls to ensure continued protection of occupational workers and ongoing stormwater management controls. Required institutional controls include: a) implementation of the Contaminated Materials Management Plan; b) maintenance of caps and covers; c) restriction on groundwater use; and d) long-term stormwater management for continued source control. These control requirements have been incorporated into an Easement and Equitable Servitude (EES) for the Halton Co. site and recorded with the property deed. See also ECSI #121.

VCS:
ECS Site ID: 1503
Facility Size: 12.16 acres
Action: No Further Action (Conditional)
Start Date: 06/15/2017

HALTON CO (Continued) **1004769828**

End Date: 06/15/2017
Facility Status: Completed
Program: VCP
Latitude: 45.5715
Longitude: -122.6129

RCRA NonGen / NLR:
Date form received by agency: 07/02/2010
Facility name: HALTON CO
Facility address: 6654 NE 47TH AVE
PORTLAND, OR 97218
EPA ID: ORD009415803
Mailing address: P.O. BOX 3377
PORTLAND, OR 97208
Contact: CHUCK HARRISON
Contact address: PO BOX 3377
PORTLAND, OR 97208
Contact country: US
Contact telephone: 503-280-1540
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: HALTON EAST CAMPUS LLC
Owner/operator address: P.O. BOX 3377
PORTLAND, OR 97208
Owner/operator country: US
Owner/operator telephone: 503-288-6411
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/21/2005
Owner/Op end date: Not reported

Owner/operator name: HALTON EAST CAMPUS LLC
Owner/operator address: P.O. BOX 3377
PORTLAND, OR 97208
Owner/operator country: US
Owner/operator telephone: 503-288-6411
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 02/21/2005
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No

HALTON CO (Continued) **1004769828**

Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: NA
. Waste name: NA

Historical Generators:
Date form received by agency: 02/06/2008
Site name: HALTON CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/01/2005
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2004
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2003
Site name: VOITH
Classification: Small Quantity Generator

Date form received by agency: 12/30/2002
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/28/2001
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/24/2001
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/28/2000
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/21/1999
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/07/1998
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/06/1997

HALTON CO (Continued) **1004769828**

Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/02/1996
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/26/1995
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/13/1994
Site name: VOITH
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 03/02/1993
Site name: VOITH
Classification: Small Quantity Generator

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

Date form received by agency: 05/18/1992
Site name: VOITH
Classification: Large Quantity Generator

Date form received by agency: 03/01/1992
Site name: SULZER ESCHER WYSS
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110004779696

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

HALTON CO (Continued) **1004769828**

ECHO:

Envid:	1004769828
Registry ID:	110004779696
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110004779696

HSIS:

Facility ID:	121681
Department Or Division Of Company:	Not reported
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	423830
NAICS Desc 1:	IND MACHINERY & EQP WHSLE
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	JEFF GOGGIN
Business Phone:	5034881204
Mailing Address:	4421 NE COLUMBIA BLVD
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	110
Day Phone:	5034756412
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	ROBIN PLANCE
Emergency Procedure:	SAFETY OFFICE
Business Type:	HEAVY EQUIPMENT SALES & SERVICES
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported

HALTON CO (Continued) **1004769828**

UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	121681
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1

HALTON CO (Continued) **1004769828**

Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN LIQUID
Physical Description:	GAS
Case Number:	7782447
Facility Id:	121681
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	CRYOGENIC CONDITIONS
Temperature of The Hazardous Substance Code:	7
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1073
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Oxidizers
Third Hazardous Class Code For Chemical:	Acute Health Hazard
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	5.1
Hazard Class 3 Of The Chemical:	6.3

Chemical:

Chemical Name:	OXYGEN LIQUID
United Nations/north America 4 Digit Class Number:	1073
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Oxidizers
Third Hazardous Class Code For Chemical:	Acute Health Hazard
Hazard Class 1 Of The Chemical:	2.2

HALTON CO (Continued) **1004769828**

Hazard Class 2 Of The Chemical:	5.1
Hazard Class 3 Of The Chemical:	6.3
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	PROPANE
Physical Description:	GAS
Case Number:	74986
Facility Id:	121681
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Chemical Abstract Service Identifier Number:	74986
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1

HALTON CO (Continued) **1004769828**

Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ARGON
Physical Description:	GAS
Case Number:	7440371
Facility Id:	121681
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1006
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON
United Nations/north America 4 Digit Class Number:	1006
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2

HALTON CO (Continued) **1004769828**

Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ARGON/CARBON DIOXIDE
Physical Description:	GAS
Case Number:	7440371
Facility Id:	121681
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Non-flammable Gas
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	2.2

Chemical:

Chemical Name:	ARGON/CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Non-flammable Gas
Hazard Class 1 Of The Chemical:	6.3

HALTON CO (Continued) **1004769828**

Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	2.2
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	CARBON DIOXIDE
Physical Description:	GAS
Case Number:	124389
Facility Id:	121681
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1013
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1013
Chemical Abstract Service Identifier Number:	124389
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3

HALTON CO (Continued) **1004769828**

Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	121681
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	DIESEL FUEL
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	0068334305
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0

HALTON CO (Continued) **1004769828**

Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

OR MANIFEST:

Manifest Year:	Manifest Year - 2004
EPA Id:	ORD009415803
Inactive Status:	Not reported
Organization Name:	Not reported
Contact Name:	Wayne Nay
Contact Telephone Number:	(541) 726-5014
Mailing Address:	PO Box 846
Mailing City/State/Zip:	Springfield, OR 97477

OR UIC:

UIC Well #:	1
Type:	5X28
Type Description:	Motor Vehicle Waste Disposal Wells
Status:	Formal Closure
UIC Number:	12539
Facility Status:	Formal Closure
Lat/Long:	45.570599 / -122.6118

UIC Well #:	2
Type:	5X28
Type Description:	Motor Vehicle Waste Disposal Wells
Status:	Formal Closure
UIC Number:	12539
Facility Status:	Formal Closure
Lat/Long:	45.570599 / -122.6118

UIC Well #:	3
Type:	5W31
Type Description:	Septic Systems (well Disposal Method)
Status:	Formal Closure
UIC Number:	12539
Facility Status:	Formal Closure
Lat/Long:	45.570599 / -122.6118

86
NNW
1/2-1
0.573 mi.
3028 ft.

PORTLAND GROUND RUN-UP ENCLOSURE FACILITY
5909 NE MCGUIRE AVE. (NE AIRWAY CIRCLE)
PORTLAND, OR 97218

OR ECSI **S106878654**
OR VCP **N/A**

Relative:
Lower

Actual:
14 ft.

ECSI:

State ID Number:	3519
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	831
Investigation:	No Further Action
FACA ID:	90599
Further Action:	0
Lat/Long (dms):	45 35 7.40 / -122 36 16.20
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	7
Qtr Section:	Not reported
Tax Lots:	Not reported
Size:	Not reported
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	11/02/2005
Created Date:	11/05/2002
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	No Further Action
Decode For Legislative:	Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420

Alias Name: Port of Portland GRE

Hazardous Release:

Substance ID.:	121996
Haz Release ID:	386488
Qty Released:	Not reported
Date Released:	Not reported
Update Date:	03/18/2005
Update By:	JWAGGY
Substance Code:	ECD228
Substance Name:	PETROLEUM HYDROCARBONS
Substance Abbrev.:	Not reported
Substance Category ID:	8534
Substance Category:	Petroleum Related Releases for OSPIRG Report
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8534
Substance Category:	Petroleum Related Releases for OSPIRG Report
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002

PORTLAND GROUND RUN-UP ENCLOSURE FACILITY (Continued) **S106878654**

Sampling Result ID: 348103
Feature Id: 0
Hazard Release Id: 386488
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 01/02/1999
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not reported
Last Update By: JWAGGY
Update Date: 03/18/2005
Decode for MediumID: Soil

Substance ID.: 122002
Haz Release ID: 386489
Qty Released: Not reported
Date Released: Not reported
Update Date: 03/18/2005
Update By: JWAGGY
Substance Code: ECD243
Substance Name: POLYAROMATIC HYDROCARBONS (PAH)
Substance Abbrev.: Not reported
Substance Alias ID: 318143
Sub Alias Name: PAH
Substance Alias ID: 318148
Sub Alias Name: POLYCYCLIC AROMATIC HYDROCARBONS (PAH)
Substance Alias ID: 318149
Sub Alias Name: POLYNUCLEAR AROMATIC HYDROCARBINS (PNA)
Substance Alias ID: 318150
Sub Alias Name: PNA
Sampling Result ID: 348104
Feature Id: 0
Hazard Release Id: 386489
Medium: 698
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 01/02/1999
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not reported
Last Update By: JWAGGY
Update Date: 03/18/2005
Decode for MediumID: Groundwater
Sampling Result ID: 348105
Feature Id: 0
Hazard Release Id: 386489

PORTLAND GROUND RUN-UP ENCLOSURE FACILITY (Continued) **S106878654**

Medium: 700
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 01/02/1999
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Stormwater.
Last Update By: JWAGGY
Update Date: 03/18/2005
Decode for MediumID: Other

Narrative:
NARR ID: 5746414
NARR Code: Contamination
Created By: JWAGGY
Created Date: 03/18/2005
Updated By: JWAGGY
Updated Date: 03/18/2005
Decode for NarcdID: Contamination
NARR Comments: (3/7/05 AC/ICP) Transformer removal June 2000, Underground Storage Tank (UST) removal 1999 - 2000, soil and groundwater investigations 1999 - 2002, stormwater investigation 2003 - 2004.

NARR ID: 5742704
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: JWAGGY
Updated Date: 03/18/2005
Decode for NarcdID: Data Sources
NARR Comments: Hart Crowser, Inc., 2001. Subsurface Investigation and Transformer Removal, Ground Run-Up Enclosure, PDX, Portland, Oregon. March 1, 2001. Hart Crowser, Inc., 2002a. Monitoring Well Installation and Sampling Report, Ground Run-Up Enclosure, Portland International Airport, Portland, Oregon. August 6, 2002. Hart Crowser, Inc., 2002b. Quarterly Groundwater Monitoring Report (October 2002), Ground Run-Up Enclosure, Portland International Airport. October 29, 2002. Hart Crowser, Inc. 2003a. Quarterly Groundwater Monitoring Report (January 2003), Ground Run-Up Enclosure, Portland International Airport. January 27, 2003. Hart Crowser, Inc. 2003b. Quarterly Groundwater Monitoring Report (April 2003), Ground Run-Up Enclosure, Portland International Airport. May 13, 2003. Hart Crowser, Inc. 2004a. Stormwater Sewer Sampling, Ground Run-Up Enclosure, Portland International Airport. February 24, 2004. Hart Crowser, Inc., 2004b. Land and Beneficial Water Use Survey, Portland International Airport, Portland, Oregon. August 11, 2004. Port of Portland, 2000. Portland International Airport Stormwater Pollution Control Plan Map. January 2000. Port of Portland, 2002. Utility Plan for Ground Run-Up Enclosure, Portland International Airport. November 20, 2002. Port of Portland, 2003a. Response to DEQ Comments on Submitted Documents, Ground Run-Up Enclosure, Portland International Airport. January 6, 2003. Port of Portland, 2003b. Project Status Report, Ground Run-Up Enclosure, Portland International Airport. June 26, 2003.

PORTLAND GROUND RUN-UP ENCLOSURE FACILITY (Continued) **S106878654**

NARR ID: 5746413
NARR Code: General Site Description
Created By: JWAGGY
Created Date: 03/18/2005
Updated By: JWAGGY
Updated Date: 03/18/2005
Decode for NarcdID: General Site Description
NARR Comments: Active international airport.

NARR ID: 5742705
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Petroleum hydrocarbons in soil and groundwater, possibly due to former USTs.

NARR ID: 5746416
NARR Code: Land Use (Current/Reasonably Likely)
Created By: JWAGGY
Created Date: 03/18/2005
Updated By: JWAGGY
Updated Date: 03/18/2005
Decode for NarcdID: Land Use (Current/Reasonably Likely)
NARR Comments: A Land and Beneficial Water Use Survey for the Portland International Airport was prepared by the Port, reviewed by DEQ and finalized in August 2004. The reasonably likely future land use of the airport and adjacent Port-owned properties is expected to remain airport-related, commercial and industrial. The Port expects that Airport facilities will be upgraded and expanded to meet increasing needs. Based on the area-wide survey, use of the uppermost aquifer for drinking water is not a current or reasonably likely beneficial water use for the site. Beneficial water use for the shallow aquifer at the site is primarily recharge of surface water. Shallow groundwater flow is generally toward teh south in the direction of the Columbia Slough. The Slough is approximately 300 feet south of the site.

NARR ID: 5746412
NARR Code: Site Location
Created By: JWAGGY
Created Date: 03/18/2005
Updated By: JWAGGY
Updated Date: 03/18/2005
Decode for NarcdID: Site Location
NARR Comments: International Airport, NE Airport Way, Portland. Airtrans Center.

NARR ID: 5742706
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 01/27/2003
Decode for NarcdID: Manner of Release
NARR Comments: Unknown; site occupied by the military beginning in the early 1940s.

PORTLAND GROUND RUN-UP ENCLOSURE FACILITY (Continued) **S106878654**

NARR ID: 5746415
NARR Code: Pathways Other Hazards
Created By: JWAGGY
Created Date: 03/18/2005
Updated By: JWAGGY
Updated Date: 03/18/2005
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Soil ingestion, dermal contact, inhalation for occupational worker, construction worker, excavation worker.

NARR ID: 5742707
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: JWAGGY
Updated Date: 03/18/2005
Decode for NarcdID: Remedial Action
NARR Comments: (11/5/02 AC/SRP) Entered the Independent Cleanup Pathway program in October 2002. In accordance with the agreement, DEQ provided Site Specific Technical Consultation during the investigation of hazardous substances at the site. DEQ concludes that based on the information presented to date, the Port of Portland Ground Run-Up Enclosure site is currently protective of public health and the environment and requires no further action under the Oregon Environmental Cleanup Law, unless new or previously undisclosed information becomes available.

NARR ID: 5746417
NARR Code: Residual Risk Assessment
Created By: JWAGGY
Created Date: 03/18/2005
Updated By: JWAGGY
Updated Date: 03/18/2005
Decode for NarcdID: Residual Risk Assessment
NARR Comments: The findings of the risk assessment for soil, groundwater and stormwater indicate the residual contamination does not pose an unacceptable risk to human health or potential ecological receptors.

NARR ID: 5746418
NARR Code: Site History
Created By: JWAGGY
Created Date: 03/18/2005
Updated By: JWAGGY
Updated Date: 03/18/2005
Decode for NarcdID: Site History
NARR Comments: The site is part of the Portland International Airport facilities located in northeast Portland. The airport is roughly bound by the Columbia River on the north, Interstate 205 on the east, the Columbia Slough on the south and NE 33rd Drive on the west. The Ground Run-Up Enclosure (GRE) is part of the Airtrans Center, which provides air cargo and air maintenance services. Several Oregon Air National Guard (OANG) building, underground fuel storage tanks, and electrical transformers formerly occupied the site.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 11/05/2002

PORTLAND GROUND RUN-UP ENCLOSURE FACILITY (Continued) **S106878654**

Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9435
Region: Northwestern Region
Complete Date: 03/07/2005
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Independent Cleanup Program
Further Action: 0
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 02/14/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 03/07/2005
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/18/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9409
Region: Northwestern Region
Complete Date: 08/01/2004
Rank Value: Not reported

PORTLAND GROUND RUN-UP ENCLOSURE FACILITY (Continued) **S106878654**

Cleanup Flag: False
Created Date: 03/18/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Beneficial Water Use Assessment
Further Action: 0
Comments: Not reported

Action ID: 9436
Region: Northwestern Region
Complete Date: 08/01/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/18/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Land-Use Assessment
Further Action: 0
Comments: Not reported

Action ID: 9486
Region: Northwestern Region
Complete Date: 03/07/2005
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/18/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RISK ASSESSMENT
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 134627
Operation Status: Active
Common Name: Portland Ground Run-Up Enclosure Facility
Yrs of Operation: unknown
Comments: Not reported
Updated Date: 04/08/2003
Updated By: GWISTAR
Decode for OpstatID: Active

VCS:
ECS Site ID: 3519
Facility Size: Not reported
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 03/07/2005
End Date: 03/07/2005
Facility Status: Completed
Program: ICP
Latitude: 45.5854

PORTLAND GROUND RUN-UP ENCLOSURE FACILITY (Continued) **S106878654**

Longitude: -122.6045

87
SW
1/2-1
0.575 mi.
3035 ft.

PARAMOUNT PEST CONTROL
5207 NE PORTLAND HWY
PORTLAND, OR 97218

OR ECSI **U000438048**
OR LUST **N/A**
OR UST

Relative:
Higher

Actual:
85 ft.

ECSI:

State ID Number:	1313
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	No Further Action
FACA ID:	5240
Further Action:	0
Lat/Long (dms):	45 34 7.70 / -122 36 32.40
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	027746346
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	18
Qtr Section:	Not reported
Tax Lots:	Not reported
Size:	0.4 acre
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	05/02/2006
Created Date:	01/23/1993
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	No Further Action
Decode For Legislative:	Not reported

Narrative:

NARR ID:	5732670
NARR Code:	Contamination
Created By:	Not reported
Created Date:	12/17/2002
Updated By:	Not reported
Updated Date:	12/17/2002
Decode for NarcdID:	Contamination
NARR Comments:	A 1984 PA determined that there was no evidence of pesticide disposal or releases at the site.

NARR ID:	5732671
NARR Code:	Hazardous Substance/Waste Types
Created By:	Not reported
Created Date:	12/17/2002
Updated By:	Not reported
Updated Date:	12/17/2002
Decode for NarcdID:	Hazardous Substance/Waste Types

PARAMOUNT PEST CONTROL (Continued) **U000438048**

NARR Comments: Pesticides (suspected).

NARR ID: 5732672
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: DEQ conducted a Basic PA of site on behalf of EPA in 1984. The conclusion of this PA was that no further federal action was required. Because the investigators found no evidence of site contamination or improper handling or disposal of pesticides, Site Assessment recommends no further action at this site.

Administrative Action:
Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9468
Region: Not reported
Complete Date: 07/10/1986
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA PA1/SI1
Further Action: Not reported
Comments: Not reported

PARAMOUNT PEST CONTROL (Continued) **U000438048**

Action ID: 9508
Region: Not reported
Complete Date: 02/12/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 04/05/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Not reported
Complete Date: 04/05/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 04/05/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: Not reported
Comments: Not reported

Action ID: 9444

PARAMOUNT PEST CONTROL (Continued) **U000438048**

Region: Not reported
Complete Date: 07/10/1986
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132628
Operation Status: Active
Common Name: Paramount Pest Control Inc.
Yrs of Operation: Since 1950
Comments: Not reported
Updated Date: 09/30/2004
Updated By: GWISTAR
Decode for OpstatID: Active

LUST:
Region: North Western Region
Facility ID: 26-98-1050
Cleanup Received Date: 12/04/1998
Cleanup Start Date: 12/07/1998
Cleanup Complete Date: 05/25/1999
Decode for Region: North West Region

UST:
Facility ID: 10302
Facility Telephone: (503)288-7375
Permittee Name: STEVEN B FISHER
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 2
Number of Tanks: 2

88
SE
1/2-1
0.594 mi.
3136 ft.

FORKLIFT SERVICES OF OREGON **OR ECSI** **S111249649**
7001 NE COLUMBIA BLVD **OR VCP** **N/A**
PORTLAND, OR 97218 **OR HSIS**

Relative:
Higher

Actual:
69 ft.

ECSI:
State ID Number: 4698
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 98099
Further Action: 258
Lat/Long (dms): 45 34 3.00 / -122 35 25.40
County Code: 26.00

FORKLIFT SERVICES OF OREGON (Continued) **S111249649**

Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 17
Qtr Section: CA
Tax Lots: SCHETKY ADDITION; TL 400 LOT 1
Size: 5.3 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 11/25/2014
Created Date: 08/30/2006
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Medium
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: Yale Material Handling NW, Inc.

Narrative:
NARR ID: 5749245
NARR Code: Contamination
Created By: MGREENB
Created Date: 05/03/2007
Updated By: MGREENB
Updated Date: 05/03/2007
Decode for NarcdID: Contamination
NARR Comments: Use of an Underground Injection Control (UIC) system for disposal of water from steam-cleaning of forklift bodies and motors was noted around the year 2000. Site assessment activities discovered petroleum hydrocarbon and lead contamination in sludge in the UIC. Also diesel fuel observed in groundwater at SW corner of the site.

NARR ID: 5749247
NARR Code: Remedial Action
Created By: GWISTAR
Created Date: 05/03/2007
Updated By: GWISTAR
Updated Date: 05/03/2007
Decode for NarcdID: Remedial Action
NARR Comments: (5/1/07 MGreenburg/ICP) Following the discovery of UIC contamination, remedial actions included the removal of material from the UIC and investigation of soil and groundwater in the vicinity. Groundwater contamination in the vicinity of the UIC location appears to be localized, and does not pose a threat to human health or the environment. DEQ reviewed the information for the site and summarized its findings in a File Memorandum dated February 21, 2007. The File Memorandum recommended a partial no further action (PNFA) for the UIC portion of the property. DEQ provided a public comment period from April 1 to April 30, 2007, to announce the proposed partial NFA determination. No comments were received by DEQ. Therefore, no further action is required for the UIC area at this site under the Oregon Environmental Cleanup law, ORS 465.200 et. seq., unless additional information becomes available that warrants further investigation. Other observed groundwater contamination at the site

FORKLIFT SERVICES OF OREGON (Continued) **S111249649**

(diesel fuel) is not part of this evaluation and needs additional investigation.

NARR ID: 5755421
NARR Code: 1922
Created By: GWISTAR
Created Date: 11/25/2014
Updated By: GWISTAR
Updated Date: 11/25/2014
Decode for NarcdID: Current Site Summary Statement
NARR Comments: [May 2007] No further action is required for the UIC area at this site under the Oregon Environmental Cleanup law, ORS 465.200 et. seq., unless additional information becomes available that warrants further investigation.

 However, other observed groundwater contamination at the site (diesel fuel) is not part of this evaluation and needs additional investigation.

Administrative Action:
Action ID: 9502
Region: Northwestern Region
Complete Date: 05/03/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 11/25/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation recommended (RI)
Further Action: Medium
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: 08/30/2006
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/30/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9409
Region: Northwestern Region
Complete Date: 06/29/2006
Rank Value: Not reported
Cleanup Flag: True
Created Date: 08/30/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Beneficial Water Use Assessment
Further Action: Low

FORKLIFT SERVICES OF OREGON (Continued) **S111249649**

Comments: Not reported

Action ID: 9484
Region: 0
Complete Date: 05/01/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/30/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9433
Region: Northwestern Region
Complete Date: 05/01/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/30/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: INDEPENDENT CLEANUP
Further Action: 0
Comments: Not reported

Action ID: 9463
Region: Northwestern Region
Complete Date: 05/01/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/03/2007
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Partial No Further Action
Further Action: 0
Comments: Not reported

VCS:
ECS Site ID: 4698
Facility Size: 5.3 acres
Action: Remedial Investigation recommended (RI)
Start Date: 05/03/2007
End Date: 05/03/2007
Facility Status: Inactive
Program: ICP
Latitude: 45.5675
Longitude: -122.5904

HSIS:

FORKLIFT SERVICES OF OREGON (Continued) **S111249649**

Facility ID:	084608
Department Or Division Of Company:	Not reported
Extremely Hazardous Substance:	Y
Facility Has Written Emergency Plan:	N
Contains 112R:	N
NAICS Code 1:	532412
NAICS Desc 1:	CONST, MINING, & FORESTRY MACHINERY & EQP
NAICS Code 2:	811111
NAICS Desc 2:	GENERAL AUTOMOTIVE REPAIR
Manager Name:	TIM SNOW
Business Phone:	5032876700
Mailing Address:	7001 NE COLUMBIA BLVD
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	30
Day Phone:	5035723723
Placard:	N
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	TIM SNOW
Emergency Procedure:	Not reported
Business Type:	SALES SERVICE & RENTAL OF FORKLIFTS
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported

FORKLIFT SERVICES OF OREGON (Continued) **S111249649**

Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	ENGINE OIL
Physical Description:	LIQUID
Case Number:	64742547
Facility Id:	084608
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	N
Description:	PLASTIC BOTTLE, JUG, BUCKET
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	PETROLEUM HYDROCARBON
United Nations/north America 4 Digit Class Number:	1270
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ENGINE OIL
United Nations/north America 4 Digit Class Number:	1270
Chemical Abstract Service Identifier Number:	64742547
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported

FORKLIFT SERVICES OF OREGON (Continued) **S111249649**

Pesticide:	Not reported
Contains 313:	Not reported
Chemical Name:	WASTE LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	7664939
Facility Id:	084608
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	7664939
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Y
Fertilizer:	Not reported

FORKLIFT SERVICES OF OREGON (Continued) **S111249649**

Pesticide:	Not reported
Contains 313:	Y
Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	084608
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N

FORKLIFT SERVICES OF OREGON (Continued) **S111249649**

Pesticide: N
Contains 313: Y

89
WNW
1/2-1
0.654 mi.
3452 ft.

Relative:
Higher

Actual:
25 ft.

AVIATION EXTERIORS
4635 NE CORNFOOT DR
PORTLAND, OR 97218

OR ECSI **1000795787**
OR AST **ORD987196284**
OR VCP
OR SPILLS
RCRA NonGen / NLR
OR AIRS
OR HSIS
OR MANIFEST

ECSI:

State ID Number:	4930
Brown ID:	0
Study Area:	False
Region ID:	Not reported
Legislatve ID:	831
Investigation:	No Further Action
FACA ID:	3460
Further Action:	258
Lat/Long (dms):	45 34 40.00 / -122 36 50.67
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	7
Qtr Section:	C
Tax Lots:	200
Size:	16.21 acres
NPL:	False
Orphan:	False
Updated By:	DHAFLEY
Update Date:	09/21/2018
Created Date:	01/04/2008
Decode For RegionID:	Not reported
Decode For BrownID:	Not reported
Decode For Furtheract:	Medium
Decode For Investstat:	No Further Action
Decode For Legislative:	Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420

Alias Name: Pride Aviation Portland, Inc.

Narrative:

NARR ID:	5750097
NARR Code:	Site Contacts
Created By:	JWAGGY
Created Date:	01/21/2008
Updated By:	DHAFLEY
Updated Date:	09/21/2018
Decode for NarcdID:	Site Contacts

NARR Comments: DEQ Project Manager: Project Manager: Paul Seidel Department of Environmental Quality 1550 NW Eastman Parkway, Suite 290 Gresham, OR

AVIATION EXTERIORS (Continued) **1000795787**

97030 (503)667-8414 fax (503)674-5148 seidel.paul@deq.state.or.us As of 2017: Daniel J Hafley, RG Hydrogeologist Northwest Region Cleanup Section Oregon DEQ Former Owner: John D. Skjervem Oregon Public Employees Retirement Fund Office of the Stte Treasurer, Investment Division 350 Winter Street NE, Suite 100 Salem, Oregon 97301

NARR ID: 5750096
NARR Code: Contamination
Created By: JWAGGY
Created Date: 01/21/2008
Updated By: DHAFLEY
Updated Date: 11/13/2018
Decode for NarcdID: Contamination
NARR Comments: (1/4/08 PS/CU&ER)At the direction of OPERF, AMEC collected and analyzed representative samples of settled dust deposited throughout the interior portions of the AMC hangar complex on multiple occasions from October 2006 to February 2007. Testing results indicated that accumulations of settled dusts inside the complex contained elevated concentrations of chromium and detectable concentrations of other toxic metals including lead, cadmium, and hexavalent chromium. The highest metals concentrations were detected in the North Hangar, where the largest deposits of settled dust were observed. Large deposits of friable metals-containing dusts were also observed in the process air handling ducts and exhaust stacks in the North Hangar. Interior spaces were subsequently remediated as a condition of the lease agreement with the Port. Boeing reached an agreement with the Port to lease the AMC Property immediately following the end of OPERF s lease in April 2007. As part of their baseline assessment of the property, Boeing s environmental consultant, Landau Associates (Landau), collected sediment samples from the Columbia Slough adjacent to the property s stormwater outfall during two events. AMEC collected and analyzed splits of the sediment samples. On January 24, 2007, Landau collected a sediment sample from the concrete pad directly below the stormwater outfall. Concentrations of total cadmium, chromium, copper, lead, and zinc detected in AMEC s split of this sample exceeded Department of Environmental Quality (DEQ) Columbia Slough baseline concentrations. A sediment sampling event occured on February 1, 2007 to assess the columbia slough of of the stromwater outfall. sampled were collected mid-channel (15-20 feet south of the north bank) surface sediment (to a depth of 10 centimeters) at three locations; (1) approximately 25 feet east [upstream] of the outfall; (2) adjacent to the outfall; and (3) approximately 25 feet west [downstream] of the outfall. AMEC split samples collected adjacent to and downstream from the outfall (locations 2 and 3, above) had selected total metals concentrations that exceeded Columbia Slough baseline values. All total metals concentrations detected in the AMEC split sample collected upstream of the outfall (location 1, above) were below Columbia Slough baseline concentrations (AMEC, 2007c). In agregate, the available information suggests some level of impact to sediment, which requires further evaluation. Recent (2017) information indicates that perfluorinated compounds have been released at the site. Followup investigation is being considered. Data from 2006 indicate the detection of PFOA and APFO in both groundwater and sediment in an on-site detention pond.

NARR ID: 5750098

AVIATION EXTERIORS (Continued) **1000795787**

NARR Code: Data Sources
Created By: JWAGGY
Created Date: 01/21/2008
Updated By: DHAFLEY
Updated Date: 11/13/2018
Decode for NarcdID: Data Sources
NARR Comments: AMEC 2007. Remediation Project Closeout Report. AMEC Earth and Environmental, June 2007. AMEC 2008. Focused Columbia Slough Sediment Investigation Report, AMEC Earth and Environmental, October 2008. Preliminary Assessment, AFFF Use, Portland International Airport, Portland, Oregon. Apex; August 3, 2017.

NARR ID: 5750099
NARR Code: General Site Description
Created By: JWAGGY
Created Date: 01/21/2008
Updated By: JWAGGY
Updated Date: 01/21/2008
Decode for NarcdID: General Site Description
NARR Comments: The AMC Property and vicinity were primarily rural residential and agricultural in use until the1950s. A small restaurant/tavern was located on the southeast corner of the AMC Property from the 1950s until the early 1990s. Mount Hood Metals, an automobile wrecking yard and a metal recycling facility, operated on the southwest portion of the AMC Property between the 1960s and 1989. Between the mid-1960s and 1991, the Port of Portland (Port) acquired ownership of the individual property parcels that comprise the AMC Property. By 1992, all historical buildings had been removed. Construction of the aircraft hangar complex and associated fire suppression facilities that currently occupy the AMC Property was completed in 1993. The original tenant for whom the hangar complex was constructed, the Pacific Aircraft Maintenance Corporation (PAMCO), became insolvent shortly after the facility opened in late 1993. As a consequence of providing financial support to the original and now defunct lessee, the Oregon Pubic Employees Retirement Fund (OPERF), acting through the Office of the Oregon State Treasurer, assumed responsibility for operation and management of the AMC Property. OPERF entered into a lease agreement with the Port on December 31, 1996 and subsequently subleased the AMC property to several subtenants that primarily used the property for aircraft painting, maintenance, and storage. The primary subtenant performed aircraft painting operations in the North Hangar of the facility, from approximately 1998 to February 2007. In 2005, OPERF began negotiations with the Port to terminate their lease of the AMC Property. In April 2006, AMEC Earth & Environmental, Inc. (AMEC) was retained by OPERF to assist in meeting their environmental due diligence obligations associated with the lease termination. AMEC performed a series of due diligence activities at the AMC Property. A bibliography listing documents prepared by AMEC and relevant prior environmental reports and documents prepared by others is included in Attachment B to this Agreement. Summarized below are prior assessment and remedial activities, which directly apply to the proposed Slough investigation. In October 2006, AMEC conducted a Phase II Environmental Site Assessment (ESA) at the AMC Property to determine whether OPERF subtenant operations had impacted AMC Property soil or groundwater. The Phase II ESA included sampling of surface soil, groundwater, stormwater catch basin sediment, and fire suppression detention pond sediment. It should be noted that, due to insufficient

AVIATION EXTERIORS (Continued) **1000795787**

sediment volume, AMEC was unable collect samples of sediment from the AMC Property s storm sewer system, which discharges to the Columbia Slough, as originally proposed in the ESA work plan. Samples were analyzed for selected metals, volatile and semi-volatile organic compounds, and petroleum constituents. Based on the results of the Phase II ESA analytical testing, AMEC concluded that subtenant operations had not significantly impacted soil or groundwater.

NARR ID: 5750100
NARR Code: Hazardous Substance/Waste Types
Created By: JWAGGY
Created Date: 01/21/2008
Updated By: JWAGGY
Updated Date: 01/21/2008
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Metals: Arsenic (total), Cadmium (total), Chromium (total), Copper (total), Mercury, Silver (total), and Zinc (total).

NARR ID: 5750102
NARR Code: Manner of Release
Created By: JWAGGY
Created Date: 01/21/2008
Updated By: JWAGGY
Updated Date: 01/21/2008
Decode for NarcdID: Manner of Release
NARR Comments: Stormwater Discharge

NARR ID: 5750103
NARR Code: Media Contamination
Created By: JWAGGY
Created Date: 01/21/2008
Updated By: JWAGGY
Updated Date: 01/21/2008
Decode for NarcdID: Media Contamination
NARR Comments: Columbia Slough Sediment

NARR ID: 5750104
NARR Code: Site Ownership
Created By: JWAGGY
Created Date: 01/21/2008
Updated By: JWAGGY
Updated Date: 01/21/2008
Decode for NarcdID: Site Ownership
NARR Comments: Port of Portland

NARR ID: 5751078
NARR Code: Remedial Action
Created By: PSEIDEL
Created Date: 01/02/2009
Updated By: PSEIDEL
Updated Date: 01/02/2009
Decode for NarcdID: Remedial Action
NARR Comments: Remedial Actions were performed in the uplands and in stormwater system. Focused sediment sampling and residual risk assessment demonstrate the risk from sediment contamination is below acceptable levels.

AVIATION EXTERIORS (Continued) **1000795787**

NARR ID: 5751077
NARR Code: Residual Risk Assessment
Created By: PSEIDEL
Created Date: 01/02/2009
Updated By: PSEIDEL
Updated Date: 01/02/2009
Decode for NarcdID: Residual Risk Assessment
NARR Comments: (1/1/2009, PRS) Focused Sediment Characaterization Report Documents, that residual concentraion of metals in sediment are low. DEQ concluded that risks are below acceptable levels and no futher action for off-site sediments was required.

NARR ID: 5750101
NARR Code: 1922
Created By: JWAGGY
Created Date: 01/21/2008
Updated By: DHAFLEY
Updated Date: 09/21/2018
Decode for NarcdID: Current Site Summary Statement
NARR Comments: (January 2009) DEQ's NFA applies only to off-site Columbia Slough sediments, not to the site itself. In 2017, a preliminary assessment was completed for airport properties to identify locations where fire-fighting chemicals, specifically AFFF, where stored or use. According to the report, An underground release of AFFF occurred shortly after the PAMCORP hanger was constructed in 1993. An unknown quantity of material was released. Foam was also discharged on two separate occassions with the hangar in the mid-1990s. A fire incident resulted in the release of up to 60,000 gallons of AFFF foam, while a sensor malfunction released up to 30,000 gallons. The majority of foam from both incidents was collected in detection ponds prior to discharge to the City of Portland sanitary sewer system. DEQ Cleanup is currently considering followup investigation at the site for perfluorinated compounds associated with AFFF incudling PFOS and PFOA. An additional foam release occurred in 2018. Based on this series of releases and the likelyhood of environmental impacts (soil and groundwater), DEQ will proceed with identification of the site as a medium priority for further investigation.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 01/04/2008
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/04/2008
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 01/04/2008
Rank Value: Not reported
Cleanup Flag: False

AVIATION EXTERIORS (Continued) **1000795787**

Created Date: 01/04/2008
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 01/02/2009
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/02/2009
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9497
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/21/2018
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Preliminary Assessment Equivalent recommended (PAE)
Further Action: Medium
Comments: Not reported

AST:
Facility Id: 110433
Hazardous Substance: AFFF
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: DENNIS
Direct Site Phone: 9712000937
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

VCS:
ECS Site ID: 4930
Facility Size: 16.21 acres
Action: Preliminary Assessment Equivalent recommended (PAE)
Start Date: 09/21/2018
End Date: Not reported
Facility Status: Inactive
Program: VCP
Latitude: 45.5779
Longitude: -122.614

OR SPILLS:
Facility ID: 2016-2425
Incident Status: Referred/Closed
Material: Other
Quantity: Unknown
Unit of Measure: None
Release Date: 10/05/2016
Description: Boeing reporting that a contractor was cleaning off their roof and failed to install the proper catchment system allowing the material to enter the Columbia Slough. Apollo Environmental is being dispatched to clean up.
Lat/Long: 45.579255 / -122.61363
Source: Business
Media: Surface Water
Responsible Company: Boeing Commercial Aircraft
Responsible Address: PO Box 20487 Mailcode 5P2-008
Responsible City,St,Zip: Portland, OR 97294

Facility ID: 2016-1639
Incident Status: Closed
Material: Other
Quantity: None
Unit of Measure: None
Release Date: 07/08/2016
Description: Boeing reported a bio sheen in the outfall that accesses the Columbia Slough. No further action.
Lat/Long: 45.579639 / -122.61356
Source: Other
Media: Surface Water
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Facility ID: 2016-0023
Incident Status: Referred/Closed
Material: Chemical Product
Quantity: Unknown
Unit of Measure: UNK
Release Date: 01/05/2016
Description: Company reports white milky substance from building roof going into Columbia slough, booms applied to area. Substance is a oxidation from the roof application that is draining off with the rainwater.
Lat/Long: 45.57907 / -122.61443
Source: Business
Media: Surface Water

AVIATION EXTERIORS (Continued) **1000795787**

Responsible Company: Boeing Commercial Aircraft
Responsible Address: PO Box 20487 Mailcode 5P2-008
Responsible City,St,Zip: Portland, OR 97294

Facility ID: 2015-0111
Incident Status: Closed
Material: Other
Quantity: Unknown
Unit of Measure: None
Release Date: 01/17/2015
Description: NRC report #1105901 & # 1105907 - sheen on outfall 3 sourcing from PDX & Boeing (Cornfoot Rd.) runoff due to heavy rains outfalling into Col. Slough - Blake Hamalainen (503.341.7836) said he will email lat long of outfall location to me (MS) on 1/20/15. Outfall has permanent absorbent boom installed.
Lat/Long: 45.579408 / -122.61363
Source: Other
Media: Surface Water
Responsible Company: Port of Portland
Responsible Address: PO Box 3529
Responsible City,St,Zip: Portland, OR 97208-3529

Facility ID: 2014-2449
Incident Status: Closed
Material: Oil - Other
Quantity: Unknown
Unit of Measure: None
Release Date: 11/05/2014
Description: Boeing reporting a sheen at their Columbia Slough outfall. Boeing monthly inspection of outfall to the Columbia Slough at Airtrans Way. A 2X2ft light colored sheen was located contained within the booms. They do not have any leaks on scene at their business and tracked it up to the Port of Portland where there is a 2X5ft sheen contained within the booms. They have placed absorbent pads within the booms at the sheen on their outfall.
Lat/Long: 45.577437 / -122.61415
Source: Unknown
Media: Surface Water
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Facility ID: 2013-2090
Incident Status: Closed
Material: Oil - Lube
Quantity: 1
Unit of Measure: Quart
Release Date: 10/09/2013
Description: Boeing reporting a sheen on the pavement at their facility in Portland. They assume the oil came from a vehicle. Minor impacts to the catch basin which leads to the Columbia Slough. Booms and pads were applied to cleanup.
Lat/Long: 45.580469 / -122.61304
Source: Motor Vehicle - Private
Media: None
Responsible Company: Boeing Commercial Aircraft
Responsible Address: PO Box 20487 Mailcode 5P2-008

AVIATION EXTERIORS (Continued) **1000795787**

Responsible City,St,Zip: Portland, OR 97294

RCRA NonGen / NLR:

Date form received by agency:	02/28/2007
Facility name:	AVIATION EXTERIORS
Facility address:	4635 NE CORNFOOT DR PORTLAND, OR 97218
EPA ID:	ORD987196284
Mailing address:	4635 NE CORNFOOT RD PORTLAND, OR 97218
Contact:	MARSHA R JOHNSON
Contact address:	Not reported Not reported
Contact country:	US
Contact telephone:	503-331-1248
Contact email:	MARSHA@AVEXPAINTING.COM
EPA Region:	10
Land type:	District
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	TRAVEL BY US
Owner/operator address:	5270 NEIL RD RENO, NV 89502
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	01/01/2001
Owner/Op end date:	Not reported
Owner/operator name:	AVIATION EXTERIORS PORTLAND, INC.
Owner/operator address:	4635 NE CORNFOOT ROAD PORTLAND, OR 97218
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/1997
Owner/Op end date:	Not reported
Owner/operator name:	OREGON PUBLIC EMPLOYEE RETIREMENT FUND C
Owner/operator address:	888 SW 5TH AVE STE 1280 PORTLAND, OR 97204
Owner/operator country:	US
Owner/operator telephone:	503-796-9201
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 04/23/1997
Owner/Op end date: Not reported

Owner/operator name: OREGON PUBLIC EMPLOYEE RETIREMENT FUND C
Owner/operator address: 888 SW 5TH AVE STE 1280
PORTLAND, OR 97204
Owner/operator country: US
Owner/operator telephone: 503-796-9201
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 04/23/1997
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/28/2007
Site name: AVIATION EXTERIORS
Classification: Not a generator, verified

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2006
Site name: AVIATION EXTERIORS
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: AVIATION EXTERIORS
Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Site name: AVIATION EXTERIORS
Classification: Not a generator, verified

Date form received by agency: 12/31/2004

AVIATION EXTERIORS (Continued) **1000795787**

Site name: AVIATION EXTERIORS
Classification: Not a generator, verified

Date form received by agency: 01/01/2004
Site name: AVIATION EXTERIORS
Classification: Large Quantity Generator

Date form received by agency: 12/31/2003
Site name: AVIATION EXTERIORS
Classification: Not a generator, verified

Date form received by agency: 03/17/2003
Site name: AVIATION EXTERIORS
Classification: Not a generator, verified

Date form received by agency: 03/13/2002
Site name: AVIATION EXTERIORS
Classification: Not a generator, verified

Date form received by agency: 03/12/2002
Site name: AVIATION EXTERIORS INC
Classification: Not a generator, verified

Date form received by agency: 03/01/2002
Site name: AVIATION EXTERIORS
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D005
. Waste name: BARIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

Date form received by agency: 02/02/2001
Site name: AVIATION EXTERIORS INC
Classification: Not a generator, verified

Date form received by agency: 03/16/2000
Site name: AVIATION EXTERIORS INC
Classification: Not a generator, verified

Date form received by agency: 03/01/2000

AVIATION EXTERIORS (Continued) **1000795787**

Site name: AVIATION EXTERIORS INC
Classification: Large Quantity Generator

Date form received by agency: 03/22/1999
Site name: AVIATION EXTERIORS INC
Classification: Not a generator, verified

Date form received by agency: 03/03/1998
Site name: AVIATION EXTERIORS INC
Classification: Not a generator, verified

Date form received by agency: 03/01/1998
Site name: PRIDE AVIATION PORTLAND INC
Classification: Large Quantity Generator

Date form received by agency: 12/31/1997
Site name: AIRCRAFT MAINTENANCE CENTER
Classification: Not a generator, verified

Date form received by agency: 10/06/1997
Site name: AVIATION EXTERIORS INC
Classification: Not a generator, verified

Date form received by agency: 04/23/1997
Site name: AIRCRAFT MAINTENANCE CENTER
Classification: Not a generator, verified

Date form received by agency: 04/22/1996
Site name: AIRCRAFT MAINTENANCE CENTER
Classification: Not a generator, verified

Date form received by agency: 02/13/1995
Site name: AIRCRAFT MAINTENANCE CENTER
Classification: Not a generator, verified

Date form received by agency: 09/12/1994
Site name: AIRCRAFT MAINTENANCE CENTER
Classification: Not a generator, verified

Date form received by agency: 04/18/1994
Site name: PAMCORP
Classification: Not a generator, verified

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D005
. Waste name: BARIUM

. Waste code: D008
. Waste name: LEAD

AVIATION EXTERIORS (Continued) **1000795787**

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE LISTED IN F001, F004, OR F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 06/17/1993
Site name: PAMCORP
Classification: Not a generator, verified

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 11/30/2006
Date achieved compliance: 01/19/2007
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/11/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 11/30/2006

AVIATION EXTERIORS (Continued) **1000795787**

Date achieved compliance: 01/19/2007
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/26/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 03/10/2003
Date achieved compliance: 05/20/2003
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 03/12/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.32(f)
Area of violation: Generators - General
Date violation determined: 01/26/2001
Date achieved compliance: 04/06/2001
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/06/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.174
Area of violation: Generators - General
Date violation determined: 01/26/2001
Date achieved compliance: 04/06/2001
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/06/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.32(e)
Area of violation: Generators - General
Date violation determined: 01/26/2001
Date achieved compliance: 04/06/2001

AVIATION EXTERIORS (Continued) **1000795787**

Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/06/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.173
Area of violation: Generators - General
Date violation determined: 01/26/2001
Date achieved compliance: 04/06/2001
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/06/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.16(d)(3)
Area of violation: Generators - General
Date violation determined: 01/26/2001
Date achieved compliance: 04/06/2001
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/06/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 262.34(a)(2)
Area of violation: Generators - Pre-transport
Date violation determined: 01/26/2001
Date achieved compliance: 04/06/2001
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/06/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.16(d)(2)
Area of violation: Generators - General
Date violation determined: 01/26/2001
Date achieved compliance: 04/06/2001
Violation lead agency: State

AVIATION EXTERIORS (Continued) **1000795787**

Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/06/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.16(c)
Area of violation: Generators - General
Date violation determined: 01/26/2001
Date achieved compliance: 04/06/2001
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/06/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 265.37
Area of violation: Generators - General
Date violation determined: 01/26/2001
Date achieved compliance: 04/06/2001
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/06/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 11/30/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 01/19/2007
Evaluation lead agency: State

Evaluation date: 03/10/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 05/20/2003
Evaluation lead agency: State

Evaluation date: 01/26/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 04/06/2001
Evaluation lead agency: State

Evaluation date: 01/26/2001

AVIATION EXTERIORS (Continued) **1000795787**

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 04/06/2001
Evaluation lead agency: State

OR AIRS:
Year: Not reported
Emission: Not reported
Permit Number: 26-3291-ST-01
Permit Type: Standard ACDP
Expiration Date: 06/01/2012
Source ID: Not reported
Issue Date: 08/08/2007
NAICS Code: 488190
Is Primary: Not reported
SIC Code: 3721
Is Primary: Not reported
Latitude: 45.5779
Longitude: -122.6140
Poll: Not reported
Emission Source Code: Not reported
Process Code: Not reported
SCC: Not reported
Emission Source Description: Not reported
Process Description: Not reported
Throughput: Not reported
Process Unit: Not reported
Throughput Type: Not reported

HSIS:
Facility ID: 110433
Department Or Division Of Company: EVERETT
Extremely Hazardous Substance: Y
Facility Has Written Emergency Plan: Y
Contains 112R: N
NAICS Code 1: 488190
NAICS Desc 1: OTHER SUPPORT ACTIVITIES FOR AIR TRANS
NAICS Code 2: 000000
NAICS Desc 2: Not reported
Manager Name: DENNIS MUILENBURG
Business Phone: 9712000937
Mailing Address: 4635 NE CORNFOOT RD
Mailing City: PORTLAND
Mailing State: OR
Mailing Zip: 972940487
No. of Employees: 230
Day Phone: 9712000937
Placard: Y
Fire Dept Code: 0291
FD: PORTLAND FIRE & RESCUE
Sprinkler System: Y
Emergency Contact: DINA TORGERSON
Emergency Procedure: EHS OFFICE
Business Type: PAINTING OF COMMERICAL AIRCRAFT
Facility Type: Not reported
Division/Department: Not reported
Facility Status: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	HYDRATED LIME
Physical Description:	SOLID
Case Number:	1305620
Facility Id:	110433
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	CALCIUM HYDROXIDE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	HYDRATED LIME
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	1305620
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	AFFF
Physical Description:	LIQUID
Case Number:	112345
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	C
Description:	TANK INSIDE BUILDING
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	BUTYL CARBITOL
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	AFFF
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	112345
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	NITROGEN
Physical Description:	GAS
Case Number:	7727379
Facility Id:	110433
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Chemical Abstract Service Identifier Number:	7727379
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	PAINTS-OIL BASED
Physical Description:	LIQUID
Case Number:	0000000
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	F
Description:	CAN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	VARIOUS
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	PAINTS-OIL BASED
United Nations/north America 4 Digit Class Number:	1263
Chemical Abstract Service Identifier Number:	0000000
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	SULFURIC ACID
Physical Description:	LIQUID
Case Number:	7664939
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	10
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	A
Temperature Description:	ABOVEGROUND TANK
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	200-499

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	1830
Hazard Rank:	2
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Reactive Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.4
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	1830
Chemical Abstract Service Identifier Number:	7664939
Chemical Is Extremely Hazardous Substance (EHS):	Y
First Hazardous Class Code For Chemical:	Reactive Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.4
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	WASTE PAINT RELATED MATERIAL
Physical Description:	LIQUID
Case Number:	67641
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ACETONE
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE PAINT RELATED MATERIAL
United Nations/north America 4 Digit Class Number:	1263
Chemical Abstract Service Identifier Number:	67641
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	PACE B-82
Physical Description:	LIQUID
Case Number:	6834920
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	O
Temperature Description:	TOTEBIN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	SODIUM METASILICATE
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PACE B-82
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	6834920
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	WASTE DEBRIS CONTAM WITH PAINT/SOLVENT
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	110433
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	21
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	K
Temperature Description:	BOX
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	ACETONE
United Nations/north America 4 Digit Class Number:	3077
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE DEBRIS CONTAM WITH PAINT/SOLVENT
United Nations/north America 4 Digit Class Number:	3077
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	ARDROX 1250
Physical Description:	LIQUID
Case Number:	2809214
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	O
Temperature Description:	TOTEBIN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	HYDROXYETHANE PHOSPHONIC ACID
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARDROX 1250
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	2809214
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	USED JET A
Physical Description:	LIQUID
Case Number:	8008206
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	P
Description:	TANK WAGON
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	KEROSENE
United Nations/north America 4 Digit Class Number:	1863
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	USED JET A
United Nations/north America 4 Digit Class Number:	1863
Chemical Abstract Service Identifier Number:	8008206
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	WASTE PAINT MATERIAL AND CONTAINERS
Physical Description:	SOLID
Case Number:	1330207
Facility Id:	110433
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	XYLENE
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable Solids
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE PAINT MATERIAL AND CONTAINERS
United Nations/north America 4 Digit Class Number:	1263
Chemical Abstract Service Identifier Number:	1330207
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable Solids
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	WASTEWATER TREATMENT SLUDGE
Physical Description:	SOLID
Case Number:	7440393
Facility Id:	110433
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	BARIUM
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTEWATER TREATMENT SLUDGE
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	7440393
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	110433
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	31
Max Amt Possessed During Year CD:	31
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	50,000-99,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	50,000-99,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	ARDROX 6489A
Physical Description:	LIQUID
Case Number:	115708
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	O
Description:	TOTEBIN
Type Code:	E
Temperature Description:	PLASTIC OR NON-METALLIC DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	2-AMINO-2-ETHYL PROPANEDIOL
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Combustible Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.5
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARDROX 6489A
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	115708
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Combustible Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.5
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	WHITE ALLIPHATIC URETHANE ROOF TOPCOAT
Physical Description:	LIQUID
Case Number:	13463677
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	2
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	TITANIUM DIOXIDE
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	3.0

Chemical:

Chemical Name:	WHITE ALLIPHATIC URETHANE ROOF TOPCOAT
United Nations/north America 4 Digit Class Number:	1263
Chemical Abstract Service Identifier Number:	13463677
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	3.0
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	CEE BEE E 1004J
Physical Description:	LIQUID
Case Number:	0000100516
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	1
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	BENZYL ALCOHOL
United Nations/north America 4 Digit Class Number:	3265
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Oxidizers
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	5.1
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	CEE BEE E 1004J
United Nations/north America 4 Digit Class Number:	3265
Chemical Abstract Service Identifier Number:	0000100516
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Oxidizers
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	5.1
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	C
Description:	TANK INSIDE BUILDING
Type Code:	A
Temperature Description:	ABOVEGROUND TANK
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	DIESEL FUEL
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	0068334305
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETONE
Physical Description:	LIQUID
Case Number:	67641
Facility Id:	110433
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	C
Temperature Description:	TANK INSIDE BUILDING
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999

AVIATION EXTERIORS (Continued) **1000795787**

Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ACETONE
United Nations/north America 4 Digit Class Number:	1090
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETONE
United Nations/north America 4 Digit Class Number:	1090
Chemical Abstract Service Identifier Number:	67641
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Y
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

OR MANIFEST:

Manifest Year:	Manifest Year - 2017
EPA Id:	ORQ000026502
Inactive Status:	Not reported
Organization Name:	Not reported
Contact Name:	Dina Torgerson
Contact Telephone Number:	Not reported
Mailing Address:	4635 Cornfoot Rd
Mailing City/State/Zip:	Portland, OR 97218

Manifest:

Year :	2017
RCRA Id :	ORQ000026502
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	008818788FLE
Ship Date :	01/30/2017
TSD :	WAD991281767
WS Num:	1
Transporter:	Not reported
Ship Qty :	Not reported
Rpt Unit :	Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Off Mng : H110
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1115.61

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818789FLE
Ship Date : 01/30/2017
TSD : WAD991281767
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1360.5

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818790FLE
Ship Date : 01/31/2017
TSD : WAD991281767
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2204.01

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818791FLE
Ship Date : 01/31/2017
TSD : WAD991281767
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1814

AVIATION EXTERIORS (Continued) **1000795787**

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818801FLE
Ship Date : 05/01/2017
TSD : WAD991281767
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 943.28

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818802FLE
Ship Date : 05/01/2017
TSD : WAD991281767
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2040.75

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818806FLE
Ship Date : 05/09/2017
TSD : WAD991281767
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2249.36

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818807FLE
Ship Date : 05/09/2017

AVIATION EXTERIORS (Continued) **1000795787**

TSD : WAD991281767
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1913.77

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818811FLE
Ship Date : 06/16/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 807.23

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818812FLE
Ship Date : 06/16/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1550.97

Click this hyperlink while viewing on your computer to access
3139 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818814FLE
Ship Date : 06/20/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 961.42

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818815FLE
Ship Date : 06/20/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1197.24

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818821FLE
Ship Date : 07/25/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1687.02

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818822FLE
Ship Date : 07/25/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769

AVIATION EXTERIORS (Continued) **1000795787**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 1442.13

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818823FLE
Ship Date : 07/31/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1142.82

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818824FLE
Ship Date : 07/31/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1777.72

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818832FLE
Ship Date : 09/01/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1829.419

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator

AVIATION EXTERIORS (Continued) **1000795787**

Manifest : 008818833FLE
Ship Date : 09/01/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1333.29

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818835FLE
Ship Date : 09/20/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2730.07

Year : 2017
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818836FLE
Ship Date : 09/20/2017
TSD : WAD020257945
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 43596.769
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3709.63

Manifest:
Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818725FLE
Ship Date : 08/31/2016
TSD : WAD991281767

AVIATION EXTERIORS (Continued) **1000795787**

WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 289.7865

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818727FLE
Ship Date : 09/14/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 579.573

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818729FLE
Ship Date : 10/05/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 434.9065

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818775FLE
Ship Date : 11/02/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006

AVIATION EXTERIORS (Continued) **1000795787**

Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 434.9065

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818779FLE
Ship Date : 11/30/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 434.9065

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818784FLE
Ship Date : 12/14/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D006
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 434.9065

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741761FLE
Ship Date : 01/13/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.15

Year : 2016
RCRA Id : ORQ000026502

AVIATION EXTERIORS (Continued) **1000795787**

Inactive : Not reported
Status: Large quantity generator
Manifest : 008818403FLE
Ship Date : 02/10/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 544.2

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818434FLE
Ship Date : 03/09/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 724.693

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818477FLE
Ship Date : 04/06/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 579.573

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3139 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818518FLE

AVIATION EXTERIORS (Continued) **1000795787**

Ship Date : 04/29/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 579.573

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818522FLE
Ship Date : 05/04/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 579.573

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818598FLE
Ship Date : 05/18/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1159.146

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818676FLE
Ship Date : 06/01/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 145.12

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818687FLE
Ship Date : 07/13/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 579.573

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818715FLE
Ship Date : 08/01/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 434.9065

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818717FLE
Ship Date : 08/12/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 289.7865

AVIATION EXTERIORS (Continued) **1000795787**

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818725FLE
Ship Date : 08/31/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 289.7865

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818727FLE
Ship Date : 09/14/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 579.573

Year : 2016
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 008818729FLE
Ship Date : 10/05/2016
TSD : WAD991281767
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D007
Waste Description: Containers of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 8633.2795
Total Amt Of Waste Stream Generated in Reporting Yr 2: 434.9065

Manifest:
Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Status: Large quantity generator
Manifest : 007741675FLE
Ship Date : 01/30/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5469.21

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741677FLE
Ship Date : 01/20/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4580.35

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741679FLE
Ship Date : 01/06/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1850.28

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741765FLE
Ship Date : 12/22/2015
TSD : WAD991281767
WS Num: 1
Transporter: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2231.22

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741766FLE
Ship Date : 12/22/2015
TSD : WAD991281767
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1587.25

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741768FLE
Ship Date : 12/10/2015
TSD : WAD991281767
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3428.46

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741769FLE
Ship Date : 12/10/2015
TSD : WAD991281767
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93

AVIATION EXTERIORS (Continued) **1000795787**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 2802.63

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741772FLE
Ship Date : 11/17/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2403.55

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741774FLE
Ship Date : 10/27/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1705.16

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741775FLE
Ship Date : 10/22/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 5777.59

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Year : 2015

AVIATION EXTERIORS (Continued) **1000795787**

RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741777FLE
Ship Date : 10/15/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2739.14

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741780FLE
Ship Date : 09/17/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1696.09

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741781FLE
Ship Date : 09/11/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4054.29

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741784FLE
Ship Date : 08/20/2015
TSD : ORD089452353

AVIATION EXTERIORS (Continued) **1000795787**

WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D006
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4852.45

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741651FLE
Ship Date : 06/03/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4299.18

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741653FLE
Ship Date : 06/15/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2176.8

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741655FLE
Ship Date : 08/04/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007

AVIATION EXTERIORS (Continued) **1000795787**

Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2993.1

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741656FLE
Ship Date : 07/30/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2857.05

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741659FLE
Ship Date : 07/10/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3310.55

Year : 2015
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 007741662FLE
Ship Date : 05/14/2015
TSD : ORD089452353
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D007
Waste Description: Debris contaminated with paints and solvents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 83434.93
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3727.77

AVIATION EXTERIORS (Continued) **1000795787**

Manifest:
Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548146FLE
Ship Date : 01/15/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1499.5431000000001

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548163FLE
Ship Date : 01/29/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 562.32639500000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548172FLE
Ship Date : 02/12/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 749.77155000000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548193FLE

AVIATION EXTERIORS (Continued) **1000795787**

Ship Date : 02/26/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 749.77155000000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548210FLE
Ship Date : 03/12/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000011122
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 749.77155000000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548223FLE
Ship Date : 03/26/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 937.21670500000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548229FLE
Ship Date : 04/09/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 187.44062

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548229FLE
Ship Date : 04/09/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1124.6573249999999

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548237FLE
Ship Date : 04/22/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 562.32639500000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548250FLE
Ship Date : 05/07/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1124.6573249999999

AVIATION EXTERIORS (Continued) **1000795787**

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3139 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548256FLE
Ship Date : 05/21/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 749.77155000000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548269FLE
Ship Date : 06/04/2014
TSD : WAD991281767
WS Num: 2
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 749.77155000000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548276FLE
Ship Date : 06/18/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 749.77155000000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Status: Large quantity generator
Manifest : 005548280FLE
Ship Date : 07/02/2014
TSD : WAD991281767
WS Num: 2
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1124.6573249999999

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548292FLE
Ship Date : 07/16/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 937.21670500000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548302FLE
Ship Date : 07/30/2014
TSD : WAD991281767
WS Num: 2
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1312.10248

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548318FLE
Ship Date : 08/13/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000011122

AVIATION EXTERIORS (Continued) **1000795787**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 937.21670500000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548327FLE
Ship Date : 08/27/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 937.21670500000005

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548332FLE
Ship Date : 09/10/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1124.6573249999999

Year : 2014
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548344FLE
Ship Date : 09/25/2014
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 25492.142

AVIATION EXTERIORS (Continued) **1000795787**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 1499.5431000000001

Manifest:
Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548068FLE
Ship Date : 08/04/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4036.1500000000001

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548129FLE
Ship Date : 12/12/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3600.79

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548119FLE
Ship Date : 11/22/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3655.21

Year : 2013

AVIATION EXTERIORS (Continued) **1000795787**

RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548111FLE
Ship Date : 11/14/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4208.4799999999996

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548079FLE
Ship Date : 09/30/2013
TSD : WAD991281767
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4861.5200000000004

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548055FLE
Ship Date : 08/07/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2748.21

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548041FLE
Ship Date : 07/06/2013
TSD : ORD089452353

AVIATION EXTERIORS (Continued) **1000795787**

WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3092.8699999999999

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548038FLE
Ship Date : 07/09/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2702.8600000000001

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548033FLE
Ship Date : 06/21/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2984.0300000000002

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547932FLE
Ship Date : 02/15/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018

AVIATION EXTERIORS (Continued) **1000795787**

Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3165.4299999999998

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3139 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548080FLE
Ship Date : 10/01/2013
TSD : WAD991281767
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3582.6500000000001

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548026FLE
Ship Date : 06/11/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3537.3000000000002

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547918FLE
Ship Date : 01/10/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3101.9400000000001

AVIATION EXTERIORS (Continued) **1000795787**

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547942FLE
Ship Date : 03/06/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3999.8699999999999

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547950FLE
Ship Date : 03/22/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3646.1399999999999

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547993FLE
Ship Date : 04/13/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3963.5900000000001

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548004FLE
Ship Date : 05/01/2013

AVIATION EXTERIORS (Continued) **1000795787**

TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3183.5700000000002

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548009FLE
Ship Date : 05/11/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3364.9699999999998

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005548015FLE
Ship Date : 05/23/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1297.01

Year : 2013
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547915FLE
Ship Date : 01/03/2013
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132

AVIATION EXTERIORS (Continued) **1000795787**

EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 67118
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2385.4099999999999

Manifest:
Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547860FLE
Ship Date : 08/30/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547899FLE
Ship Date : 12/01/2012
TSD : ORD089452353
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547875FLE
Ship Date : 10/19/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547878FLE
Ship Date : 10/23/2012
TSD : ORD089452353
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547903FLE
Ship Date : 12/11/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547868FLE
Ship Date : 09/27/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator

AVIATION EXTERIORS (Continued) **1000795787**

Manifest : 005547861FLE
Ship Date : 09/04/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151590FLE
Ship Date : 02/08/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151564FLE
Ship Date : 03/27/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151558FLE
Ship Date : 07/24/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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3139 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151553FLE
Ship Date : 07/11/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151541FLE
Ship Date : 06/14/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151515FLE
Ship Date : 04/17/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018

AVIATION EXTERIORS (Continued) **1000795787**

Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151513FLE
Ship Date : 05/18/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151605FLE
Ship Date : 01/19/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547887FLE
Ship Date : 11/11/2012
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502

AVIATION EXTERIORS (Continued) **1000795787**

Inactive : Not reported
Status: Large quantity generator
Manifest : 005547892FLE
Ship Date : 11/21/2012
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151608FLE
Ship Date : 01/18/2012
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151614FLE
Ship Date : 01/04/2012
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 005547853FLE
Ship Date : 08/15/2012
TSD : WAD991281767
WS Num: 2

AVIATION EXTERIORS (Continued) **1000795787**

Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151727FLE
Ship Date : 05/11/2011
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 81542.928
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3364.9699999999998

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151698FLE
Ship Date : 06/27/2011
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 81542.928
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2947.75

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151779FLE
Ship Date : 01/19/2011
TSD : WAD991281767
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 40771.464
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3927.3099999999999

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151765FLE
Ship Date : 02/02/2011
TSD : WAD991281767
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 40771.464
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3083.8000000000002

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151764FLE
Ship Date : 02/02/2011
TSD : WAD991281767
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 40771.464
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3083.8000000000002

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151762FLE
Ship Date : 03/02/2011
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 40771.464
Total Amt Of Waste Stream Generated in Reporting Yr 2: 340.125

AVIATION EXTERIORS (Continued) **1000795787**

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151732FLE
Ship Date : 04/13/2011
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 81542.928
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3809.4000000000001

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 000794995FLE
Ship Date : 03/15/2011
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 81542.928
Total Amt Of Waste Stream Generated in Reporting Yr 2: 975.02499999999998

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151665FLE
Ship Date : 09/07/2011
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 40771.464
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1791.325

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151685FLE
Ship Date : 07/27/2011

AVIATION EXTERIORS (Continued) **1000795787**

TSD : ORD089452353
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 81542.928
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2974.96

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Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151659FLE
Ship Date : 09/23/2011
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 40771.464
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4290.1099999999997

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151643FLE
Ship Date : 10/26/2011
TSD : ORD089452353
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 40771.464
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3584.4639999999999

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151638FLE
Ship Date : 11/07/2011
TSD : ORD089452353
WS Num: 1
Transporter: CAT000624247

AVIATION EXTERIORS (Continued) **1000795787**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 40771.464
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2902.4000000000001

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151630FLE
Ship Date : 11/28/2011
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 81542.928
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2721

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151761FLE
Ship Date : 03/02/2011
TSD : ORD089452353
WS Num: 1
Transporter: MAD039322250
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 40771.464
Total Amt Of Waste Stream Generated in Reporting Yr 2: 975.02499999999998

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151783FLE
Ship Date : 01/19/2011
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: "Solvents, paints, and inks"
Total Amt Of Waste Stream Generated in Reporting Yr 1: 18420.716499999999

AVIATION EXTERIORS (Continued) **1000795787**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 353.73000000000002

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151688FLE
Ship Date : 07/20/2011
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: "Solvents, paints, and inks"
Total Amt Of Waste Stream Generated in Reporting Yr 1: 18420.716499999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 353.73000000000002

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151692FLE
Ship Date : 07/06/2011
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: "Solvents, paints, and inks"
Total Amt Of Waste Stream Generated in Reporting Yr 1: 18420.716499999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 883.87149999999997

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151699FLE
Ship Date : 06/22/2011
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: "Solvents, paints, and inks"
Total Amt Of Waste Stream Generated in Reporting Yr 1: 18420.716499999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 224.93600000000001

Year : 2011
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator

AVIATION EXTERIORS (Continued) **1000795787**

Manifest : 002151711FLE
Ship Date : 06/08/2011
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: "Solvents, paints, and inks"
Total Amt Of Waste Stream Generated in Reporting Yr 1: 18420.716499999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 353.73000000000002

Manifest:
Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151836FLE
Ship Date : 10/13/2010
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 16716.463500000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 937.21670500000005

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151823FLE
Ship Date : 10/27/2010
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 16716.463500000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 749.77155000000005

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151822FLE
Ship Date : 11/10/2010
TSD : WAD991281767

AVIATION EXTERIORS (Continued) **1000795787**

WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 16716.463500000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 374.88577500000002

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151895FLE
Ship Date : 02/17/2010
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 16716.463500000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 749.77155000000005

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151803FLE
Ship Date : 12/08/2010
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010
Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 16716.463500000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 749.77155000000005

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151810FLE
Ship Date : 11/24/2010
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H050
EPA Waste Codes: D001 D005 D006 D007 D008 D010

AVIATION EXTERIORS (Continued) **1000795787**

Waste Description: Solvents, paints, and inks
Total Amt Of Waste Stream Generated in Reporting Yr 1: 16716.463500000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 405.62853999999999

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151887FLE
Ship Date : 01/29/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1079.3299999999999

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151949FLE
Ship Date : 05/26/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1891.095

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151948FLE
Ship Date : 05/26/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1891.095

Year : 2010
RCRA Id : ORQ000026502

AVIATION EXTERIORS (Continued) **1000795787**

Inactive : Not reported
Status: Large quantity generator
Manifest : 002151925FLE
Ship Date : 04/14/2010
TSD : WAD991281767
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 956.88499999999999

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Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151924FLE
Ship Date : 04/14/2010
TSD : WAD991281767
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 956.88499999999999

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151912FLE
Ship Date : 03/17/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1256.1949999999999

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151972FLE

AVIATION EXTERIORS (Continued) **1000795787**

Ship Date : 07/07/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3310.5500000000002

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151888FLE
Ship Date : 01/29/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1079.3299999999999

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151970FLE
Ship Date : 07/07/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3310.5500000000002

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151853FLE
Ship Date : 09/01/2010
TSD : WAD991281767
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2521.46

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151852FLE
Ship Date : 09/01/2010
TSD : WAD991281767
WS Num: 1
Transporter: CAT000624247
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2521.46

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151833FLE
Ship Date : 10/13/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3342.2950000000001

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151830FLE
Ship Date : 10/13/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 3342.2950000000001

AVIATION EXTERIORS (Continued) **1000795787**

Year : 2010
RCRA Id : ORQ000026502
Inactive : Not reported
Status: Large quantity generator
Manifest : 002151816FLE
Ship Date : 11/12/2010
TSD : WAD991281767
WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H112
EPA Waste Codes: D005 D006 D007 D008 D010 D018
Waste Description: debris contaminated with paints and sealants
Total Amt Of Waste Stream Generated in Reporting Yr 1: 33949.010000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1360.5

Manifest:
Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668704
Ship Date : 02/16/2007
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catallyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 589.54999999999995
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.14999999999998

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668621
Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 408.06
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.06

AVIATION EXTERIORS (Continued) **1000795787**

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668703
Ship Date : 02/16/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper, paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3776.0700000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1798.1300000000001

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 01668621
Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper, paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3776.0700000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1977.9400000000001

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668621
Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catallyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 589.54999999999995
Total Amt Of Waste Stream Generated in Reporting Yr 2: 181.40000000000001

Manifest:
Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00

AVIATION EXTERIORS (Continued) **1000795787**

Status: Large quantity generator
Manifest : 001668704
Ship Date : 02/16/2007
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catallyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 589.54999999999995
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.14999999999998

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668621
Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 408.06
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.06

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668703
Ship Date : 02/16/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper, paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3776.0700000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1798.1300000000001

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 01668621
Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398

AVIATION EXTERIORS (Continued) **1000795787**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper, paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3776.0700000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1977.9400000000001

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668621
Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catallyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 589.54999999999995
Total Amt Of Waste Stream Generated in Reporting Yr 2: 181.40000000000001

Manifest:
Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668704
Ship Date : 02/16/2007
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catallyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 589.54999999999995
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.14999999999998

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668621
Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061

AVIATION EXTERIORS (Continued) **1000795787**

EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 408.06
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.06

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668703
Ship Date : 02/16/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper, paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3776.0700000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1798.1300000000001

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 01668621
Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper, paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3776.0700000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1977.9400000000001

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668621
Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catallyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 589.54999999999995
Total Amt Of Waste Stream Generated in Reporting Yr 2: 181.40000000000001

AVIATION EXTERIORS (Continued) **1000795787**

Manifest:

Year :	2007
RCRA Id :	ORD987196284
Inactive :	2007-02-28 00:00:00
Status:	Large quantity generator
Manifest :	001668704
Ship Date :	02/16/2007
TSD :	KSD980633259
WS Num:	3
Transporter:	ORD009227398
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H061
EPA Waste Codes:	D001 D005 D006 D007
Waste Description:	Solid Catallyzed Paint waste from painting operations

Total Amt Of Waste Stream Generated in Reporting Yr 1: 589.54999999999995
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.14999999999998

Year :	2007
RCRA Id :	ORD987196284
Inactive :	2007-02-28 00:00:00
Status:	Large quantity generator
Manifest :	001668621
Ship Date :	01/16/2007
TSD :	KSD980633259
WS Num:	1
Transporter:	ORD009227398
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H061
EPA Waste Codes:	D001 D035 F003 F005
Waste Description:	Waste solvent from cleanup of paint

Total Amt Of Waste Stream Generated in Reporting Yr 1: 408.06
Total Amt Of Waste Stream Generated in Reporting Yr 2: 408.06

Year :	2007
RCRA Id :	ORD987196284
Inactive :	2007-02-28 00:00:00
Status:	Large quantity generator
Manifest :	001668703
Ship Date :	02/16/2007
TSD :	KSD980633259
WS Num:	2
Transporter:	ORD009227398
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H061
EPA Waste Codes:	D007
Waste Description:	Paint Stripper Waste containing spent stripper, paint chips, benzel alcohol

Total Amt Of Waste Stream Generated in Reporting Yr 1: 3776.0700000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1798.1300000000001

Year :	2007
RCRA Id :	ORD987196284
Inactive :	2007-02-28 00:00:00
Status:	Large quantity generator
Manifest :	01668621

AVIATION EXTERIORS (Continued) **1000795787**

Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper, paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: 3776.0700000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1977.9400000000001

Year : 2007
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 001668621
Ship Date : 01/16/2007
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catallyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: 589.54999999999995
Total Amt Of Waste Stream Generated in Reporting Yr 2: 181.40000000000001

Manifest:
Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 382150
Ship Date : 09/07/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catalyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 359350
Ship Date : 02/27/2006
TSD : WAD067548966
WS Num: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catalyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 359348
Ship Date : 02/27/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 550
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 372131
Ship Date : 06/13/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catalyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 392127
Ship Date : 12/01/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 825
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol

AVIATION EXTERIORS (Continued) **1000795787**

Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 375846
Ship Date : 07/13/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 392126
Ship Date : 12/01/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 353042
Ship Date : 01/09/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 220
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00

AVIATION EXTERIORS (Continued) **1000795787**

Status: Large quantity generator
Manifest : 359350
Ship Date : 02/27/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 385916
Ship Date : 10/05/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Click this hyperlink while viewing on your computer to access
3139 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 353042
Ship Date : 01/09/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catalyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 364619
Ship Date : 04/12/2006

AVIATION EXTERIORS (Continued) **1000795787**

TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1375
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 382151
Ship Date : 09/07/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 825
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 364618
Ship Date : 04/12/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 330
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 385915
Ship Date : 10/05/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1100
Rpt Unit : GAL
Off Mng : H061

AVIATION EXTERIORS (Continued) **1000795787**

EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 353045
Ship Date : 01/09/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 825
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 382150
Ship Date : 09/07/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 220
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 364618
Ship Date : 04/12/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catalyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006

AVIATION EXTERIORS (Continued) **1000795787**

RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 375845
Ship Date : 07/13/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1750
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 372131
Ship Date : 06/13/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 382150
Ship Date : 09/07/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catalyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator

AVIATION EXTERIORS (Continued) **1000795787**

Manifest : 359350
Ship Date : 02/27/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catalyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 359348
Ship Date : 02/27/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 550
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 372131
Ship Date : 06/13/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catalyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 392127
Ship Date : 12/01/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 825

AVIATION EXTERIORS (Continued) **1000795787**

Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 375846
Ship Date : 07/13/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 392126
Ship Date : 12/01/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 353042
Ship Date : 01/09/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 220
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 359350
Ship Date : 02/27/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 385916
Ship Date : 10/05/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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3139 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 353042
Ship Date : 01/09/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catalyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00

AVIATION EXTERIORS (Continued) **1000795787**

Status: Large quantity generator
Manifest : 364619
Ship Date : 04/12/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1375
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 382151
Ship Date : 09/07/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 825
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 364618
Ship Date : 04/12/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 330
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 385915
Ship Date : 10/05/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398

AVIATION EXTERIORS (Continued) **1000795787**

Ship Qty : 1100
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 353045
Ship Date : 01/09/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 825
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 382150
Ship Date : 09/07/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 220
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 364618
Ship Date : 04/12/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Solid Catalyzed Paint waste from painting operations
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 375845
Ship Date : 07/13/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 1750
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Paint Stripper Waste containing spent stripper,paint chips, benzel alcohol
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD987196284
Inactive : 2007-02-28 00:00:00
Status: Large quantity generator
Manifest : 372131
Ship Date : 06/13/2006
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Waste solvent from cleanup of paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 309198
Ship Date : 12/02/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004

AVIATION EXTERIORS (Continued) **1000795787**

RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 305253
Ship Date : 10/26/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 289712
Ship Date : 06/09/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 311994
Ship Date : 12/28/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 296166
Ship Date : 08/04/2004
TSD : KSD980633259

AVIATION EXTERIORS (Continued) **1000795787**

WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 311992
Ship Date : 12/28/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 545
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 305254
Ship Date : 10/26/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 750
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 301158
Ship Date : 09/21/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 750
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007

AVIATION EXTERIORS (Continued) **1000795787**

Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 296165
Ship Date : 08/04/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 240
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 289712
Ship Date : 06/09/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 309199
Ship Date : 12/02/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 735
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 277398
Ship Date : 02/11/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 220
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 305253
Ship Date : 10/26/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 277399
Ship Date : 02/11/2004
TSD : TXD097673149
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 500
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 301157
Ship Date : 09/21/2004

AVIATION EXTERIORS (Continued) **1000795787**

TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 277398
Ship Date : 02/11/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 311994
Ship Date : 12/28/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 286504
Ship Date : 05/07/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061

AVIATION EXTERIORS (Continued) **1000795787**

EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 296166
Ship Date : 08/04/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 309198
Ship Date : 12/02/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Manifest:
Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 309198
Ship Date : 12/02/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 305253
Ship Date : 10/26/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 289712
Ship Date : 06/09/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 311994
Ship Date : 12/28/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator

AVIATION EXTERIORS (Continued) **1000795787**

Manifest : 296166
Ship Date : 08/04/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 311992
Ship Date : 12/28/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 545
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 305254
Ship Date : 10/26/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 750
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 301158
Ship Date : 09/21/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 750

AVIATION EXTERIORS (Continued) **1000795787**

Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 296165
Ship Date : 08/04/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 240
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 289712
Ship Date : 06/09/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Click this hyperlink while viewing on your computer to access
3139 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 309199
Ship Date : 12/02/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 735
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007

AVIATION EXTERIORS (Continued) **1000795787**

Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 277398
Ship Date : 02/11/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 220
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 305253
Ship Date : 10/26/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 110
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 277399
Ship Date : 02/11/2004
TSD : TXD097673149
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 500
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284

AVIATION EXTERIORS (Continued) **1000795787**

Inactive : Not reported
Status: Large quantity generator
Manifest : 301157
Ship Date : 09/21/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 277398
Ship Date : 02/11/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 165
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 311994
Ship Date : 12/28/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 286504
Ship Date : 05/07/2004
TSD : WAD067548966
WS Num: Not reported

AVIATION EXTERIORS (Continued) **1000795787**

Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 296166
Ship Date : 08/04/2004
TSD : KSD980633259
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D005 D006 D007
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2004
RCRA Id : ORD987196284
Inactive : Not reported
Status: Large quantity generator
Manifest : 309198
Ship Date : 12/02/2004
TSD : WAD067548966
WS Num: Not reported
Transporter: ORD009227398
Ship Qty : 55
Rpt Unit : GAL
Off Mng : H061
EPA Waste Codes: D001 D035 F003 F005
Waste Description: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

---

90
East
1/2-1
0.661 mi.
3489 ft.

Relative:
Lower

Actual:
20 ft.

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE
7111 NE ALDERWOOD RD.
PORTLAND, OR 97218

OR ECSI **S103054456**
OR AST **N/A**
OR VCP
OR SPILLS
OR HAZMAT
OR HSIS

ECSI:
State ID Number: 2641
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: No Further Action

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

FACA ID: 43697
Further Action: 0
Lat/Long (dms): 45 35 1.70 / -122 34 57.40
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 8
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 06/12/2015
Created Date: 08/07/2000
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Not reported
Alias Name: Portland International Airport
Alias Name: PDX Maintenance Facility

Hazardous Release:
Substance ID.: 122012
Haz Release ID: 378985
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/08/2000
Update By: Not reported
Substance Code: ECD275
Substance Name: TOTAL PETROLEUM HYDROCARBONS (TPH)
Substance Abbrev.: Not reported
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 339610
Feature Id: Not reported
Hazard Release Id: 378985
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/15/2000

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 19,100 ppm (as Heavy Oil)
Last Update By: jmw
Update Date: 08/07/2000
Decode for MediumID: Soil
Sampling Result ID: 339611
Feature Id: Not reported
Hazard Release Id: 378985
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/27/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.722 ppm (as Heavy Oil)
Last Update By: jmw
Update Date: 08/07/2000
Decode for MediumID: Groundwater
Sampling Result ID: 339612
Feature Id: Not reported
Hazard Release Id: 378985
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/27/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2.21 (as diesel)
Last Update By: jmw
Update Date: 08/07/2000
Decode for MediumID: Groundwater

Substance ID.: 122002
Haz Release ID: 378986
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/08/2000
Update By: Not reported
Substance Code: ECD243
Substance Name: POLYAROMATIC HYDROCARBONS (PAH)
Substance Abbrev.: Not reported
Substance Alias ID: 318143
Sub Alias Name: PAH
Substance Alias ID: 318148
Sub Alias Name: POLYCYCLIC AROMATIC HYDROCARBONS (PAH)

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Substance Alias ID: 318149
Sub Alias Name: POLYNUCLEAR AROMATIC HYDROCARBINS (PNA)
Substance Alias ID: 318150
Sub Alias Name: PNA
Sampling Result ID: 339613
Feature Id: Not reported
Hazard Release Id: 378986
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/27/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not detected at 0.1 ppb detection limit.
Last Update By: jmw
Update Date: 08/07/2000
Decode for MediumID: Groundwater

Narrative:
NARR ID: 5739929
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 06/25/2003
Decode for NarcdID: Contamination
NARR Comments: (8/7/00 MTP/SAP) On February 23, 2000, unusual operating conditions in an oil delivery system prompted testing of the line with a helium tracer. The system consists of a 5/8 inch diameter PVC line conveying heavy oil from a 500-gallon above-ground storage tank (AST) near a remote pump island. A leak was discovered in the line near a pump island. Petroleum hydrocarbon analysis confirmed the presence of heavy oil. Subsequently, a total of 170 gallons of oily water, and 10 tons of impacted soil were removed from the release area. The depth of the excavation was 8 feet; depth to groundwater is about 5.5 feet below ground surface (bgs). Soil and groundwater sampling showed the heavy oil contamination was localized in the release area. The most impacted material was the pea gravel used as backfill in the pipeline trench, as underlying silt appeared to have limited vertical migration. Relatively low levels of diesel (2.21 ppm) and heavy oil (0.722 ppm) were detected in groundwater sample (GP-1) collected about 20 feet south of the release point. Polynuclear aromatic hydrocarbons (PAHs) were not detected in one groundwater sample (GP-3) analyzed, where diesel was detected at 0.943 ppm. Groundwater flow direction was not indicated, although it is likely to the south towards the Columbia Slough. PAHs were not analyzed for in GP-1, although this sample had the highest petroleum level. Approximately 5 cubic yards of impacted soil with concentrations up to 19,100 ppm heavy oil remain in place; this soil was not removed due to structural integrity concerns for the pump island and canopy structure.

NARR ID: 5739930

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: OERS #00-0488.

NARR ID: 5739931
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Heavy oil.

NARR ID: 5739932
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: The release occurred in a 5/8-inch diameter PVC line conveying heavy oil from a 500-gallon above-ground storage tank (AST) near a remote pump island. The release was suspected initially on February 23, 2000, and the leak confirmed on March 1, 2000. It was reported that 20 gallons of motor oil were released.

NARR ID: 5739933
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Possible migration of impacted shallow groundwater to the Columbia Slough. The site is located between two east-west trending segment of the Columbia Slough. Several unnamed drainages in the area flow to the Columbia Slough, including a north-south trending drainage that appears to be in the vicinity of the sanitary sewer release. The Columbia Slough is water-quality-limited (303d listed) for toxics, due primarily to lead in the water column, and pesticides and polychlorinated biphenyls (PCBs) in fish tissue. DEQ considers 303d-listed water bodies as Vulnerable Areas. DEQ's Water Quality Division has developed Total Maximum Daily Load requirements (TMDLs) within the Columbia Slough for these contaminants.

NARR ID: 5739934
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (8/1/00 MTP/SAP) The site was referred from the Spill Program to Site

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Assessment on June 28, 2000.

Administrative Action:

Action ID: 9424
Region: Northwestern Region
Complete Date: 08/07/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 08/07/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: Low
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 05/13/2004
Rank Value: Not reported
Cleanup Flag: True
Created Date: 05/13/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9469
Region: Northwestern Region
Complete Date: 06/28/2000
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/11/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: 0
Comments: Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Operations:

Operation Id:	133862
Operation Status:	Unknown
Common Name:	PDX Maintenance Facility
Yrs of Operation:	unknown
Comments:	Not reported
Updated Date:	08/07/2000
Updated By:	jmw
Decode for OpstatID:	Unknown
Operations SIC Id:	197158
SIC Code:	4700
Created By:	Not reported
Created Date:	12/17/2002

AST:

Facility Id:	017925
Hazardous Substance:	DIESEL FUEL
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported
Storage 1:	Below ground tank
County:	MULTNOMAH
Owner-Operator Name:	Roland
Direct Site Phone:	5034604553
Report Class:	Annual
Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No
Is Biological Hazard:	No
Is Radioactive Material:	No
Is Explosive:	No
Status:	Not reported

Facility Id:	017925
Hazardous Substance:	GASOLINE
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported
Storage 1:	Below ground tank
County:	MULTNOMAH
Owner-Operator Name:	Roland
Direct Site Phone:	5034604553
Report Class:	Annual
Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No
Is Biological Hazard:	No
Is Radioactive Material:	No
Is Explosive:	No
Status:	Not reported

Facility Id:	017925
Hazardous Substance:	MOTOR OIL
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: Roland
Direct Site Phone: 5034604553
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 017925
Hazardous Substance: POTASSIUM ACETATE LIQUID
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: Roland
Direct Site Phone: 5034604553
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 017925
Hazardous Substance: PROPANE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: Roland
Direct Site Phone: 5034604553
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

VCS:
ECS Site ID: 2641
Facility Size: Not reported
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 05/13/2004
End Date: 05/13/2004
Facility Status: Completed
Program: ICP

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Latitude: 45.5838
Longitude: -122.5826

OR SPILLS:
Facility ID: 2014-0011
Incident Status: Closed
Material: Oil - Fuel
Quantity: unknown
Unit of Measure: None
Release Date: 01/03/2014
Description: Port of Portland observed a sheen on McBride Slough and believed it to be related to the Jet Fuel release on 12/24/13 OERS 13-2741 40 gallon release to pavement and cleaned up by Terra Hydra.
Lat/Long: 45.574575 / -122.58131
Source: Motor Vehicle - Commercial
Media: Fresh Water
Responsible Company: Atlantic Aviation
Responsible Address: 7527 NE Airport Way
Responsible City,St,Zip: Portland, OR 97218

Facility ID: 1998-3101
Incident Status: Archive
Material: Motor, bearing, propeller and other lubrication oils
Quantity: 200
Unit of Measure: Gallons
Release Date: 12/18/1998
Description: 200 gallons of 90 wt gear oil spilled within the maintenance shed at PDX. Contained within Lube Pit- No exterenal release. Containment Systems effective. Valve on dispenser left open by mistake- Valves already inodified to be only open whe.
Lat/Long: 45.5767 / -122.5816
Source: Industrial Plant
Media: On pavement/asphalt - not direct on soil
Responsible Company: Port of Portland
Responsible Address: 7111 NE Alderwood Dr
Responsible City,St,Zip: Portland, OR 97218-2854

HAZMAT:
Responsble Party: TOM TOWBRIDGE
RP Company: PORT OF PORTLAND
RP Address: 7111 NE ALDERWOOD
RP City,St,Zip: PORTLAND, OR 97218
Facility ID: 910208
OERS Number: Not reported
Dept Rsp: PORTLAND BUREAU OF F&R&EMS
Narrative: Not reported
Property Loss: Not reported
Amount Released: Not reported
Service County: Not reported
Service Name: Not reported
Incident Type: Not reported
Civilian Casualty Activity: Not reported
Chemical Name: Not reported
Hazmat Area Affected: Not reported
Hazmat Area Evacuated: Not reported
Hazmat Container Type: Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	PORTLAND BUREAU OF F&R&EMS
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	0002284291
Osfm Incident Report Number:	910208
Dept. Responding:	PORTLAND BUREAU OF F&R&EMS
Person Making Report:	PERRY SIGLER
Title:	LIEUTENANT
Agency:	PORTLAND BUREAU OF F&R&EMS
Phone:	0002284291
Date Of Incident:	05/30/1991
Call Time:	11:18:00 AM
In Route:	12:00:00 AM
Arrival:	11:28:00 AM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	1:49:00 PM
Dist Of Incident:	PORTLAND BUREAU OF F&R&EMS
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	Not reported
Agency Report Number:	91-21295
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Private Land
Area Type:	Commercial
Responsible Party(Ies):	TOM TOWBRIDGE
Company:	PORT OF PORTLAND
Respcontact:	Not reported
Address:	7111 NE ALDERWOOD
Resp City:	PORTLAND

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Resp State:	OR
Resp ZipCode:	97218
Phone:	0003351096
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	Normal Operation
Cause:	Unknown
Vehicle And Cargo:	0
Fixed Property:	0
Total Loss:	$0.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	504
Chemical Id:	2053
Incident Id:	910208
Chemical Name:	ALUMINUM SULFATE
UNNA:	Not reported
Amount At Risk:	55
Amount Released:	20
Amount Measured:	2
Biological:	False
Radiological:	False

Chemical Id:	2053
Chemical Name:	ALUMINUM SULFATE
Hazardous Ingredient:	ALUMINUM SULFATE
Hazardous Class 1:	8.0
Hazardous Class 2:	6.3
Hazardous Rank:	2
Case Number:	10043013
UNNA Number:	3264
EPA Pest Reg:	Not reported
EHA Chem:	Not reported
PSM Chem:	Not reported
CAA 112R Chem:	Not reported

Method:

Method Used Id:	6987
Incident Id:	910208
Identity Method:	1

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Released:
Release Behavior Id: 3889
Incident Id: 910208
Behavior: 4

Narrative:
Narrative Id: 3319
Incident Id: 910208
Incident Narrative: RESPONDED AT REQUEST OF PORT OF PORTLAND FIRE DEPT. USED LIME TO NEUTRALIZE 20 GALLONS OF ALUMINUM SULFATE SPILLED ON GROUND. NEUTRALIZED MATERIAL PLACED IN OVERPACK DRUMS AND LEFT WITH PORT FOR DISPOSAL.
Incident Date: 5/30/1991

HSIS:

Facility ID:	017925
Department Or Division Of Company:	AIRPORT MAINT
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	921190
NAICS Desc 1:	OTHER GENERAL GOV SUPPORT
NAICS Code 2:	488119
NAICS Desc 2:	OTHER AIRPORT OPERATIONS
Manager Name:	WILLIAM WYATT
Business Phone:	5034604553
Mailing Address:	PO BOX 3529
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97208
No. of Employees:	85
Day Phone:	5034604728
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	RICK ELLIOTT
Emergency Procedure:	MAINT ADMIN OFC
Business Type:	AIRPORT MAINT
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	FERTILIZER 43-0-0 POLYON
Physical Description:	SOLID
Case Number:	57136
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	45
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	UREA
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	4
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	FERTILIZER 43-0-0 POLYON
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	57136
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	Y
Pesticide:	N
Contains 313:	N

Chemical Name:	FLOOR SWEEP
Physical Description:	SOLID
Case Number:	1332587
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	CLAY
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	FLOOR SWEEP
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	1332587
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	GASOLINE
Physical Description:	LIQUID
Case Number:	8006619
Facility Id:	017925
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	B
Description:	UNDERGROUND TANK
Type Code:	F
Temperature Description:	CAN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1203
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	GASOLINE
United Nations/north America 4 Digit Class Number:	1203
Chemical Abstract Service Identifier Number:	8006619
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Y
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	LIME PELLETIZED
Physical Description:	SOLID
Case Number:	0001317653
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	CALCIUM CARBONATE
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	1
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	LIME PELLETIZED
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	0001317653
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	MAGNESIUM CHLORIDE
Physical Description:	SOLID
Case Number:	7786303
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	O
Description:	TOTEBIN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	MAGNESIUM CHLORIDE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	MAGNESIUM CHLORIDE
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	7786303
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	MOTOR OIL
Physical Description:	LIQUID
Case Number:	64742547
Facility Id:	017925
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	MOTOR OIL
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	64742547
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	N
Pesticide:	N
Contains 313:	Not reported

Chemical Name:	NATURAL GAS
Physical Description:	GAS
Case Number:	74828
Facility Id:	017925
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	METHANE
United Nations/north America 4 Digit Class Number:	1971
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	NATURAL GAS
United Nations/north America 4 Digit Class Number:	1971
Chemical Abstract Service Identifier Number:	74828
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	017925
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	PROPANE
Physical Description:	GAS
Case Number:	74986
Facility Id:	017925
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	L
Temperature Description:	CYLINDER
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Chemical Abstract Service Identifier Number:	74986
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	R-22
Physical Description:	GAS
Case Number:	75456
Facility Id:	017925
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	CHLORODIFLUOROMETHANE
United Nations/north America 4 Digit Class Number:	1018
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	R-22
United Nations/north America 4 Digit Class Number:	1018
Chemical Abstract Service Identifier Number:	75456
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Y
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	SF-RUNWAY DEICER
Physical Description:	SOLID
Case Number:	141537
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	40
Max Amt Possessed During Year CD:	41
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	O
Temperature Description:	TOTEBIN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	250,000-499,999
Description Of The Avg Qnty Code:	100,000-249,999
Most Hazardous Ingridient:	SODIUM FORMATE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	SF-RUNWAY DEICER
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	141537
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ARGON
Physical Description:	GAS
Case Number:	7440371
Facility Id:	017925
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1006
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	ARGON
United Nations/north America 4 Digit Class Number:	1006
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	WASTE ABSORBENTS
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	D
Description:	STEEL DRUM
Type Code:	O
Temperature Description:	TOTEBIN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	WASTE ABSORBENTS
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	ARGON/CARBON DIOXIDE MIXTURE
Physical Description:	GAS
Case Number:	7440371
Facility Id:	017925
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	ARGON/CARBON DIOXIDE MIXTURE
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	WASTE BEAD BLAST MATERIAL
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	GLASS OXIDE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	WASTE BEAD BLAST MATERIAL
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	WASTE LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	7664939
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	WASTE LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	7664939
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Y
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Y

Chemical Name:	ZINC PHOSPHIDE OAT BAIT
Physical Description:	SOLID
Case Number:	1314847
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	30
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ZINC PHOSPHIDE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Reactive Material
Third Hazardous Class Code For Chemical:	Pesticide
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.4
Hazard Class 3 Of The Chemical:	6.5

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	ZINC PHOSPHIDE OAT BAIT
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	1314847
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Reactive Material
Third Hazardous Class Code For Chemical:	Pesticide
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.4
Hazard Class 3 Of The Chemical:	6.5
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	61282-14
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	Y
Contains 313:	Y

Chemical Name:	SUPER FLOWCRETE
Physical Description:	SOLID
Case Number:	65997151
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	PORTLAND CEMENT
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	SUPER FLOWCRETE
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	65997151
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	FERTILIZER 25-05-5
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	Not reported
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	FERTILIZER 25-05-5
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	ENNIS LEAD FREE WATERBORNE TRAFFIC PAINT
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	017925
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	METHANOL
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	ENNIS LEAD FREE WATERBORNE TRAFFIC PAINT
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	HD-50
Physical Description:	SOLID
Case Number:	14808607
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	CRYSTALLINE SILICA
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	HD-50
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	14808607
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	FERTILIZER 25-0-5 SSN
Physical Description:	SOLID
Case Number:	57136
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	UREA
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	FERTILIZER 25-0-5 SSN
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	57136
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	BEAD BLAST SPHERES
Physical Description:	SOLID
Case Number:	65997173
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	GLASS OXIDE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	BEAD BLAST SPHERES
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	65997173
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	POTASSIUM ACETATE LIQUID
Physical Description:	LIQUID
Case Number:	127082
Facility Id:	017925
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	POTASSIUM ACETATE
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	1
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	POTASSIUM ACETATE LIQUID
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	127082
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	CONCRETE MIX
Physical Description:	SOLID
Case Number:	14808607
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SILICA SAND CRYSTALLINE
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	4
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	CONCRETE MIX
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	14808607
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ROAD SAVER SEALANT
Physical Description:	SOLID
Case Number:	8052424
Facility Id:	017925
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	K
Description:	BOX
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ASPHALT
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	ROAD SAVER SEALANT
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	8052424
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	017925
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	B
Description:	UNDERGROUND TANK
Type Code:	A
Temperature Description:	ABOVEGROUND TANK
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	DIESEL FUEL
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	0068334305
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	017925
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

PORTLAND MAINTENANCE FACILITY - LUBE OIL AST LINE (Continued) **S103054456**

Chemical:

Chemical Name:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Chemical Abstract Service Identifier Number:	74862
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

P91
West
1/2-1
0.688 mi.
3633 ft.

Relative:
Lower

Actual:
21 ft.

ODEQ STATE SUPERFUND SITE NU WAY OIL CO
7039 NE 46TH AVE
PORTLAND, OR 97218

Site 1 of 2 in cluster P

SEMS-ARCHIVE **1000435885**
RCRA-CESQG **ORD009055534**
OR CRL
OR ECSI
OR ENG CONTROLS
OR INST CONTROL
OR BROWNFIELDS
FINDS
ECHO
OR MANIFEST

SEMS Archive:

Site ID:	1000375
EPA ID:	ORD009055534
Cong District:	03
FIPS Code:	41051
FF:	N
NPL:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information
Latitude:	45.574444
Longitude:	-122.613889

SEMS Archive Detail:

Region:	10
Site ID:	1000375
EPA ID:	ORD009055534
Site Name:	NU WAY OIL CO
NPL:	N
FF:	N
OU:	00
Action Code:	VS
Action Name:	ARCH SITE
SEQ:	1
Start Date:	Not reported
Finish Date:	1984-08-01 05:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf In-Hse

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Region: 10
Site ID: 1000375
EPA ID: ORD009055534
Site Name: NU WAY OIL CO
NPL: N
FF: N
OU: 00
Action Code: PA
Action Name: PA
SEQ: 1
Start Date: 1984-05-15 05:00:00
Finish Date: 1984-08-01 05:00:00
Qual: H
Current Action Lead: EPA Perf

Region: 10
Site ID: 1000375
EPA ID: ORD009055534
Site Name: NU WAY OIL CO
NPL: N
FF: N
OU: 00
Action Code: SI
Action Name: SI
SEQ: 1
Start Date: 1984-05-15 05:00:00
Finish Date: 1984-08-01 05:00:00
Qual: N
Current Action Lead: EPA Perf

Region: 10
Site ID: 1000375
EPA ID: ORD009055534
Site Name: NU WAY OIL CO
NPL: N
FF: N
OU: 00
Action Code: DS
Action Name: DISCVRY
SEQ: 1
Start Date: 1979-07-01 04:00:00
Finish Date: 1979-07-01 04:00:00
Qual: Not reported
Current Action Lead: EPA Perf

RCRA-CESQG:
Date form received by agency: 12/31/2014
Facility name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Facility address: 7039 NE 46TH AVE
PORTLAND, OR 97218
EPA ID: ORD009055534
Mailing address: 2020 SW 4TH AVENUE 4TH FL
PORTLAND, OR 97201
Contact: DEBBIE BAILEY
Contact address: 2020 SW 4TH AVENUE 4TH FL
PORTLAND, OR 97201

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Contact country: US
Contact telephone: 503-229-6811
Contact email: Not reported
EPA Region: 10
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name: OREGON DEQ
Owner/operator address: 811 SW 6TH AVE
PORTLAND, OR 97204
Owner/operator country: US
Owner/operator telephone: 503-229-5696
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: State
Owner/Operator Type: Owner
Owner/Op start date: 12/31/2014
Owner/Op end date: Not reported

Owner/operator name: OREGON DEQ
Owner/operator address: 811 SW 6TH AVE
PORTLAND, OR 97204
Owner/operator country: US
Owner/operator telephone: 503-229-5696
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: State
Owner/Operator Type: Operator
Owner/Op start date: 12/31/2014
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: NA
. Waste name: NA

Historical Generators:
Date form received by agency: 01/02/2014
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: NA
. Waste name: NA

Date form received by agency: 01/02/2014
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2013
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 05/08/2013
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2011
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2010
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

. Waste code: NA
. Waste name: NA

Date form received by agency: 01/11/2010
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: NA
. Waste name: NA

Date form received by agency: 12/31/2009
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2008
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2007
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Large Quantity Generator

Date form received by agency: 12/31/2007
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Large Quantity Generator

Date form received by agency: 12/31/2006
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2004
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2003
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 03/11/2003
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 05/09/2002
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 03/21/2002
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 03/28/2001
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Date form received by agency: 03/30/2000
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 07/09/1998
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 09/03/1997
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Large Quantity Generator

Date form received by agency: 03/23/1995
Site name: ODEQ STATE SUPERFUND SITE NU WAY OIL CO
Classification: Large Quantity Generator

Violation Status: No violations found

CRL:
Facility ID: 88
Location ID: 3738
Status Code: LIS
Facility Status: No Further Action (Conditional)
Lat/Long: 45.5745 / -122.6154

ECSI:
State ID Number: 88
Brown ID: Brownfield Site - DEQ Funding Assistance
Study Area: False
Region ID: 2
Legislatve ID: 838
Investigation: Listed on the CRL/Inventory
FACA ID: 3738
Further Action: 0
Lat/Long (dms): 45 34 28.20 / -122 36 55.40
County Code: 26.00
Score Value: Not reported
Cerclis ID: 009055534
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: BB
Tax Lots: 1600
Size: 2.7 acres
NPL: False
Orphan: True
Updated By: DBAILEY
Update Date: 03/16/2016
Created Date: 04/12/1988
Decode For RegionID: Northwest Region
Decode For BrownID: Brownfield Site - DEQ Funding Assistance
Decode For Furtheract: Not reported
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Orphan Site Account
Alias Name: Nu-Way Oil Co.

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Hazardous Release:
Substance ID.: 121639
Haz Release ID: 382692
Qty Released: unknown
Date Released: unknown
Update Date: 06/30/1993
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Comment ID: 304600
Release Code: Media Contamination Footnote
Release Comments: Data from removal area excluded
Decode for Relcomcd: Media Contamination Footnote
Sampling Result ID: 342093
Feature Id: 0
Hazard Release Id: 382692
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 04/22/1999
End Date: 04/22/1999
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 24,300 ppm
Last Update By: DBAILEY
Update Date: 09/20/2005
Decode for MediumID: Soil
Sampling Result ID: 345016
Feature Id: 0
Hazard Release Id: 382692
Medium: 698
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/01/2002
End Date: 03/01/2002
Min Concentration: Not reported

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Max Concentration: Not reported
Sample Comment: 281 ppb
Last Update By: DBAILEY
Update Date: 09/20/2005
Decode for MediumID: Groundwater
Sampling Result ID: 346372
Feature Id: 0
Hazard Release Id: 382692
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 01/01/2003
End Date: 01/01/2003
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 35,300 ppm
Last Update By: DBAILEY
Update Date: 09/20/2005
Decode for MediumID: Sediment

Substance ID.: 121059
Haz Release ID: 382693
Qty Released: unknown
Date Released: approximately 1935 to present
Update Date: 09/20/2005
Update By: DBAILEY
Substance Code: 1336-36-3
Substance Name: PCBs
Substance Abbrev.: Not reported
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317029
Sub Alias Name: BIPHENYL,POLYCHLORO-
Substance Alias ID: 317030
Sub Alias Name: CHLORINATED BIPHENYL
Substance Alias ID: 317031
Sub Alias Name: CHLOROBIPHENYL
Substance Alias ID: 317032
Sub Alias Name: POLYCHLORINATED BIPHENYLs
Substance Alias ID: 317033
Sub Alias Name: POLYCHLOROBIPHENYL
Sampling Result ID: 344108
Feature Id: 0
Hazard Release Id: 382693
Medium: 703

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 1 foot
Start Date: 04/09/1999
End Date: 04/09/1999
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 310 ppm
Last Update By: DBAILEY
Update Date: 09/20/2005
Decode for MediumID: Soil
Sampling Result ID: 348326
Feature Id: 0
Hazard Release Id: 382693
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: 10/09/2002
End Date: 10/09/2002
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1.5 ppm
Last Update By: DBAILEY
Update Date: 09/20/2005
Decode for MediumID: Sediment

Substance ID.: 121781
Haz Release ID: 382709
Qty Released: unknown
Date Released: approximately 1935 to present
Update Date: 06/30/1993
Update By: Not reported
Substance Code: 79-01-6
Substance Name: TRICHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317517
Sub Alias Name: ETHINYL TRICHLORIDE
Substance Alias ID: 317518
Sub Alias Name: ETHYLENE TRICHLORIDE
Substance Alias ID: 317519
Sub Alias Name: TCE
Substance Alias ID: 317520
Sub Alias Name: TRI-CLENE
Substance Alias ID: 317521
Sub Alias Name: TRICHLOROETHENE
Comment ID: 304602
Release Code: Media Contamination Footnote
Release Comments: Not reported
Decode for Relcomcd: Media Contamination Footnote
Sampling Result ID: 342095
Feature Id: 0
Hazard Release Id: 382709
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/01/1994
End Date: 11/01/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 81 ppm
Last Update By: DBAILEY
Update Date: 09/20/2005
Decode for MediumID: Soil
Sampling Result ID: 346374
Feature Id: 0
Hazard Release Id: 382709
Medium: 698
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/27/2002
End Date: 03/27/2002
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 527 ppb
Last Update By: DBAILEY
Update Date: 09/20/2005
Decode for MediumID: Groundwater

Substance ID.: 121996

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Haz Release ID: 382710
Qty Released: unknown
Date Released: approximately 1935 to present
Update Date: 06/30/1993
Update By: Not reported
Substance Code: ECD228
Substance Name: PETROLEUM HYDROCARBONS
Substance Abbrev.: Not reported
Substance Category ID: 8534
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8534
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Comment ID: 304610
Release Code: Media Contamination Footnote
Release Comments: Sediment sample from slough, soil sample outside removal area
Decode for Relcomcd: Media Contamination Footnote
Sampling Result ID: 342094
Feature Id: 0
Hazard Release Id: 382710
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/01/1994
End Date: 11/01/1994
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 87,000 ppm
Last Update By: DBAILEY
Update Date: 09/20/2005
Decode for MediumID: Soil
Sampling Result ID: 346373
Feature Id: 0
Hazard Release Id: 382710
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/01/2002
End Date: 10/01/2002
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 31,320 ppm
Last Update By: DBAILEY
Update Date: 09/20/2005

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Decode for MediumID: Sediment

Narrative:

NARR ID: 5730482
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: DBAILEY
Updated Date: 11/25/2005
Decode for NarcdID: Contamination
NARR Comments: (5/6/2003 DAB/SRS) Nu-Way Oil Company re-refined motor oil and other used oils at the site for over 50 years. Oily sludges and wastewaters were disposed of in an unlined lagoon, and other wastes were spread on the ground. There was evidence of spills and leaks, and liquid wastes from the lagoon were used for dust control on-site. Contaminants included petroleum hydrocarbons (waste motor oil), lead, chromium, chlorinated solvents, and low levels of PCBs and pesticides. Soil and groundwater were impacted, as well as sediments in the adjacent Whitaker Slough.

NARR ID: 5753785
NARR Code: Data Sources
Created By: DBAILEY
Created Date: 01/12/2012
Updated By: DBAILEY
Updated Date: 01/12/2012
Decode for NarcdID: Data Sources
NARR Comments: DEQ Northwest Region Project File: ECSI 88.

NARR ID: 5730484
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Petroleum hydrocarbons, lead, chromium, chlorinated solvents, and low levels of PCBs and pesticides.

NARR ID: 5730485
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: KDANA
Updated Date: 04/01/2003
Decode for NarcdID: Manner of Release
NARR Comments: Releases from unlined lagoon and surface oil spills; releases potentially occurred from 1935 to 1987.

NARR ID: 5753786
NARR Code: Site Ownership
Created By: DBAILEY
Created Date: 01/12/2012
Updated By: DBAILEY
Updated Date: 01/12/2012
Decode for NarcdID: Site Ownership
NARR Comments: The site is owned by Mr. Delton Geary.

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

NARR ID: 5747196
NARR Code: Project Activity Status
Created By: GWISTAR
Created Date: 09/21/2005
Updated By: GWISTAR
Updated Date: 09/21/2005
Decode for NarcdID: Project Activity Status
NARR Comments: SOME PROJECT REPORTS ARCHIVED, BOX #272839185

NARR ID: 5730486
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: DBAILEY
Updated Date: 01/12/2012
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: The selected cleanup plan for the property has been implemented. Some of the hot spot soils were removed from the site and disposed off-site. Hot spot soil remain on site particularly in the production area on the east side of the property. A soil cap was placed over the remaining contaminated soil, hot spot and non-spot but above acceptable risk levels. Contaminated soils from the bank and contaminated sediment from the Whitaker Slough at concentrations above the risk-based concentrations were placed on the property under the cap. The property is surrounded by a security fence on the west, east and south sides. The interceptor trench remains on the property to intercept any subsurface contamination that might migrate towards the slough. Contamination does not appear to be migrating toward the slough.

NARR ID: 5730750
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: SMILLER
Updated Date: 05/08/2018
Decode for NarcdID: Remedial Action
NARR Comments: (9/20/2005 DAB/SRS) In November 1989, DEQ retained Parametrix, a state contractor, to prepare a work plan for a Remedial Investigation and Feasibility Study (RI/FS) and a site security plan. A focused Remedial Investigation and Removal Assessment was completed in June 1993. DEQ retained another state contractor, Ecology & Environment (E&E) to address the principal threats at the site. An above ground storage tank was removed and a temporary cover was installed over the lagoon area in February 1994. A groundwater interceptor trench and oil recovery system were installed in August 1994 and extended to the full length of the site in May 1995. Ecology & Environment (E&E) completed its Removal Assessment report in March 1995, and completed a study of the sediment contamination in the Slough in September 1995. A contract for the removal of contaminated lagoon soils and sludges was awarded to Smith Environmental Technologies. Work began in late July 1996 and was completed in November 1996. Afterward, E&E conducted quarterly groundwater monitoring, and collected soil samples from areas of the site not included in the lagoon removal. A baseline risk assessment addressing both human health and ecological risk (Level II) was completed in September 1998. A draft FS report was received in October 1999. The draft report revealed data gaps

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

concerning the slough bank, sediment, and the groundwater/surface water interface. These data gaps were investigated in May 2000 and incorporated into a revised draft FS in September 2000. A focused Feasibility Study (limited to upland soils) was completed in February 2001. In 2001 and 2002, additional site investigations were completed to address the extent of petroleum hydrocarbons and chlorinated volatiles in the upland subsurface soils and groundwater, and to address the extent of sediment contamination in the Whitaker Slough. The Revised Baseline Risk Assessment was completed in January 2004. The draft Feasibility Study was completed in September 2004. This FS covers the entire project whereas the earlier FS was focused on uplands soils only. The staff report for the project was issued for public comment on September 15, 2005. (11/25/05 DAB) Record of Decision was signed on January 17, 2006. (3/09) Most of the remedial action has been completed. Most of the upland soil hot spots have been removed, the Whitaker Slough sediments have been dredged, and a two foot soil cap with engineered surface water drainage has been placed on the property. Operation and maintenance has involved watering and cap monitoring. The construction completion report was issued in January 2008. A site evaluation/protectiveness report was completed in spring 2009. Institutional controls are in place through DEQ monthly monitoring. (1/11 DAB) Sampling for the air pathway has been completed. Reporting will be completed during a five year review. (1/12 DAB) The Whitaker Slough is now being managed under the Columbia Slough Sediment Project ECSI #1283. (4/1/14) Reporting has been completed for the property. The property is monitored by DEQ bimonthly. DEQ is interested in finding a buyer for the property. (5/7/2015) An appraisal was generated for the property. Closure activities are underway and property sale may occur in 2015. (10/20/15) Wells were decommissioned in August 2015. In addition, the property was surveyed and remediation equipment removed. Property is ready for sale. (1/19/16) On October 1, 2015 Multnomah County foreclosed on the property. The property will go up for public sale in the near future. (1/3/2017) The property is up for public sale a second time. (10/5/17) Institutional Controls (Notice of Environmental Contamination) were recorded with Multnomah County on 8/28/17 for tax lots 1N2E Section 18bb, 1800 and 1N2E Section 18ba 3500. The associated CMMPs are located on Webdocs. (3/27/18) A Prospective Purchaser Agreement(PPA) for the Nuway Oil property was signed 1/27/18. Under the PPA the purchaser has recorded the institutional control (EES) with Multnomah County to implement and comply with institutional controls to maintain environmental site safety, contributed $80,000 to the Columbia Slough sediment cleanup (ECSI#1283) and place this long-vacant property into productive commercial use, consistent with City of Portland zoning. An institutional control (EES) was recorded with Mulnomah County for 7030 NE 46th Ave. to maintain the cap and comply with a CMMP. The associated documents are located on Webdocs. (5/8/18) In May 2018, DEQ issued a Certificate of Completion for the PPA and remedial action to address environmental contamination at the NuWay Oil site is complete, and no further action is required except for the following conditions: 1) comply with the easement and equitable servitudes to address groundwater use and health and safety considerations for subsurface excavation; 2) maintain the soil and gravel cap; 3) perform annual inspections of the cap and bank and complete reporting to DEQ every five years ; 4) implement the Contaminated Media Management Plan when managing soil or groundwater

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

generated at the site; and, 5) avoid activities that may compromise the reconstructed Whitaker Slough bank.

NARR ID: 5747184
NARR Code: Substances of Concern
Created By: GWISTAR
Created Date: 09/15/2005
Updated By: GWISTAR
Updated Date: 09/15/2005
Decode for NarcdID: Substances of Concern
NARR Comments: The primary contaminants of concern include lead, polychlorinated biphenyls (PCBs), and residual petroleum hydrocarbons.

NARR ID: 5730956
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: DBAILEY
Updated Date: 01/12/2012
Decode for NarcdID: Health Threats
NARR Comments: Cleanup has been completed at the site. Contaminated soil remains on the property under a soil cap to control direct exposure to the contaminants. Only excavation on the property would result in direct exposure to remaining site contaminants and that is currently controlled by DEQ's soil cap monitoring program. DEQ is also monitoring activities on adjacent properties with some subsurface contamination from the Nuway site. The cleanup in Whitaker Slough was not complete due to feasbility issues. Whitaker Slough sediments are now managed under the Columbia Slough project. The site is fenced to restrict access, but access to the slough is unrestricted. There are no domestic wells at or very near the site. Groundwater is believed to discharge directly to the slough.

NARR ID: 5753805
NARR Code: Institutional Control
Created By: DBAILEY
Created Date: 01/23/2012
Updated By: DBAILEY
Updated Date: 04/01/2014
Decode for NarcdID: Institutional Control
NARR Comments: Control of site currently through DEQ bimonthly inspections.

NARR ID: 5747183
NARR Code: Site History
Created By: GWISTAR
Created Date: 09/15/2005
Updated By: GWISTAR
Updated Date: 08/22/2007
Decode for NarcdID: Site History
NARR Comments: The re-refining process, which occurred from 1935-1987, involved the removal of water, debris, and particles from the oil. The waste from this process including acid sludge, wastewater, and spent clay filtrate were disposed of in the unlined lagoon located in the west portion of the site. According to the site owner, waste was directed into the lagoon across the ground surface via trenches and berms instead of pipes and oil waste inundated site soil. When the facility was shut down in 1987, the lagoon was covered with spent clay, site

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

soil, and demolition debris.

NARR ID: 5749603
NARR Code: 1922
Created By: GWISTAR
Created Date: 08/22/2007
Updated By: MFRISTE
Updated Date: 07/13/2018
Decode for NarcdID: Current Site Summary Statement
NARR Comments: (May 2018) The Nuway Oil Company operated a used oil re-refining facility at the site from 1935 to 1987. The investigation and cleanup of the property was performed by ODEQ as the former property owner was determined not to have sufficient financial resources to perform the complicated and substantial investigation and cleanup. The Record of Decision was issued in January 2006. The cleanup at the site included soil excavation, sediment dredging, bank stabilization, and site capping. Long term maintenance of the property is required due to contamination remaining under the cap. Multnomah County foreclosed on the property in 2015 due to back taxes.

A Prospective Purchaser Agreement (PPA) for the Nuway Oil property was signed on 1/29/2018. Under the PPA the purchaser recorded the institutional control (EES) with Multnomah County to implement and comply with institutional controls to maintain environmental site safety, contributed $80,000 to the Columbia Slough sediment cleanup (ECSI#1283) and place this long-vacant property into productive commercial use. Contamination is present in subsurface soils on off-site property east, west, and south of the Nuway property. Institutional Controls have been placed on the property and adjacent properties indicating that excavation in the subsurface may result in removal of contaminated soil that must be managed properly.

In May 2018, DEQ issued a Certificate of Completion for the PPA and remedial action to address environmental contamination at the NuWay Oil site is complete, and no further action is required except for the following conditions: 1) comply with the easement and equitable servitudes to address groundwater use and health and safety considerations for subsurface excavation; 2) maintain the soil and gravel cap; 3) perform annual inspections of the cap and bank and complete reporting to DEQ every five years; 4) implement the Contaminated Media Management Plan when managing soil or groundwater generated at the site; and, 5) avoid activities that may compromise the reconstructed Whitaker Slough bank.

Site Control:
Site Control #: 634
Control Number: 36
Begin Date: 01/01/2007
End Date: Not reported
Frequency Of Review: 12
Last Reviewed By: Sarah Miller
Last Reviewed Date: 03/15/2018
Last Update By: SMILLER
Last Updated Date: 03/27/2018
Site Comment: A soil cap was placed on the property in 2007. The cap includes pavement covering a portion of the RCI property on the southeastern side of the soil cap. Two EES', were recorded with Multnomah County; one at 7039 NE 46thAve, (Nuway Oil property) 1/27/2018; one at 7030 NE 46thAve (RCI property) 3/15/2018. Owners shall inspect cap at least annual and report to DEQ every 5 years.

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Site Control #: 635
Control Number: 6
Begin Date: 01/01/2007
End Date: Not reported
Frequency Of Review: 12
Last Reviewed By: Sarah Miller
Last Reviewed Date: 12/05/2017
Last Update By: SMILLER
Last Updated Date: 03/27/2018
Site Comment: Contamination is present in subsurface soils on off-site property east, west, and south of the Nuway property. The adjacent property owners have been notified that excavation in the subsurface may result in removal of contaminated soil that must be managed properly. The Contaminated Media Management Plans are avaliable on webdocs. A Notice of Environmental Contamination was recorded in August 2017 with Multnomah County Clerk for two properties: 7039 S NE 46th Ave. Portland Oregon and 7107 NE 47th Ave. Portland Oregon.

Administrative Action:
Action ID: 9450
Region: Northwestern Region
Complete Date: 01/23/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/05/2009
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: OPERATION and MAINTENANCE
Further Action: 0
Comments: Not reported

Action ID: 9434
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/23/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Institutional Control
Further Action: 0
Comments: Not reported

Action ID: 9411
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/08/2018
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: No Further Action (Conditional)

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Further Action: 0
Comments: Not reported

Action ID: 9469
Region: Northwestern Region
Complete Date: 01/01/2008
Rank Value: Not reported
Cleanup Flag: True
Created Date: 01/05/2007
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: 0
Comments: Not reported

Action ID: 9481
Region: Headquarters
Complete Date: 09/23/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: Feasibility Study recommended (FS)
Further Action: High
Comments: Not reported

Action ID: 9429
Region: Northwestern Region
Complete Date: 02/28/2001
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: 0
Comments: Not reported

Action ID: 9412
Region: Headquarters
Complete Date: 05/15/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: Consent Order
Further Action: Not reported

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Comments: Not reported

Action ID: 9492
Region: Headquarters
Complete Date: 03/23/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL ASSESSMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9491
Region: Headquarters
Complete Date: 11/15/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: Not reported
Comments: Not reported

Action ID: 9486
Region: Headquarters
Complete Date: 09/29/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: RISK ASSESSMENT
Further Action: 0
Comments: Not reported

Action ID: 9488
Region: Headquarters
Complete Date: 02/26/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing on Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Action ID: 9489
Region: Headquarters
Complete Date: 02/26/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing on Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9453
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: ORPHAN SITE
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 06/30/1989
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9503

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Region: Headquarters
Complete Date: 06/30/1989
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation/Feasibility Study recommended
Further Action: High
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Headquarters
Complete Date: 05/23/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9442
Region: Headquarters
Complete Date: 05/15/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: Not reported
Comments: Not reported

Action ID: 9499
Region: Headquarters

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Complete Date: 08/08/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9459
Region: Headquarters
Complete Date: 08/06/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9468
Region: Not reported
Complete Date: 08/01/1984
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA PA1/SI1
Further Action: Not reported
Comments: Not reported

Action ID: 9444
Region: Not reported
Complete Date: 08/01/1984
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Headquarters
Complete Date: 08/08/1990

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9429
Region: Headquarters
Complete Date: 09/23/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Headquarters
Complete Date: 09/11/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Headquarters
Complete Date: 09/11/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9448
Region: Headquarters
Complete Date: 02/25/1991
Rank Value: 0

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9439
Region: Headquarters
Complete Date: 05/23/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9445
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Responsible party notified re 11/88 Inventory listing
Further Action: Not reported
Comments: Not reported

Action ID: 9484
Region: Headquarters
Complete Date: 09/23/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9437
Region: Headquarters
Complete Date: 08/07/1990
Rank Value: 0
Cleanup Flag: False

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9486
Region: Northwestern Region
Complete Date: 01/14/2005
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/23/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RISK ASSESSMENT
Further Action: 0
Comments: Not reported

Action ID: 9429
Region: Northwestern Region
Complete Date: 09/20/2005
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/06/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: 0
Comments: Not reported

Action ID: 9494
Region: Northwestern Region
Complete Date: 01/17/2006
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/20/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RECORD OF DECISION
Further Action: 0
Comments: Not reported

Action ID: 9473
Region: 0
Complete Date: 05/31/2006
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/29/2005

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL DESIGN
Further Action: 0
Comments: Not reported

Action ID: 9409
Region: 0
Complete Date: 01/17/2006
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/13/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Beneficial Water Use Assessment
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 131490
Operation Status: Inactive
Common Name: Nu-Way Oil Co.
Yrs of Operation: 1935-1987
Comments: Reclamation of motor and other used oils for re-refining.
Updated Date: 04/01/2003
Updated By: KDANA
Decode for OpstatID: Inactive
Operations SIC Id: 195509
SIC Code: 2992
Created By: Not reported
Created Date: 12/17/2002

Enginering Control:
Site Control Sequence #: 634
Site Id: 88
Control Sequence #: 36
Begin Date: 01/01/2007
End Date: Not reported
Frequency Of Review: 12
Last Reviewed By: Sarah Miller
Last Review Date: 03/15/2018
Last Updated By: SMILLER
Last Updated Date: 03/27/2018
Group Sequence #: 9
Control Code: CPE
Control Description: Cap, engineered
FK Type Code: 2
Group Code: SB
Group Description: Surface Barriers
Type Code: E
Type Description: Engineering
Comments: A soil cap was placed on the property in 2007. The cap includes pavement covering a portion of the RCI property on the southeastern

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

side of the soil cap. Two EES', were recorded with Multnomah County; one at 7039 NE 46thAve, (Nuway Oil property) 1/27/2018; one at 7030 NE 46thAve (RCI property) 3/15/2018. Owners shall inspect cap at least annual and report to DEQ every 5 years.

Institutional Control:

Site Control Sequence #:	635
Site Id:	88
Control Sequence #:	6
Begin Date:	01/01/2007
End Date:	Not reported
Frequency Of Review:	12
Last Reviewed By:	Sarah Miller
Last Review Date:	12/05/2017
Last Updated By:	SMILLER
Last Updated Date:	03/27/2018
Group Sequence #:	2
Control Code:	USO
Control Description:	Use Restriction Other
FK Type Code:	1
Group Code:	PR
Group Description:	Proprietary
Type Code:	I
Type Description:	Institutional
Comments:	Contamination is present in subsurface soils on off-site property east, west, and south of the Nuway property. The adjacent property owners have been notified that excavation in the subsurface may result in removal of contaminated soil that must be managed properly. The Contaminated Media Management Plans are avaliable on webdocs. A Notice of Environmental Contamination was recorded in August 2017 with Multnomah County Clerk for two properties: 7039 S NE 46th Ave. Portland Oregon and 7107 NE 47th Ave. Portland Oregon.

OR BROWNFIELDS:

Geolocation Id:	3738
Status:	No Further Action (Conditional)
Lat/Long:	45.5745 / -122.615

FINDS:

Registry ID: 110004779473

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000435885
Registry ID:	110004779473
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110004779473

OR MANIFEST:

Manifest Year:	Manifest Year - 2014
EPA Id:	ORD009055534
Inactive Status:	Not reported
Organization Name:	Oregon Dept of Environmental Quality Nor
Contact Name:	Debbie Bailey
Contact Telephone Number:	Not reported
Mailing Address:	2020 SW 4th Avenue 4th Fl
Mailing City/State/Zip:	Portland, OR 97201

Manifest:

Year :	2007
RCRA Id :	ORD009055534
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	001822785
Ship Date :	08/06/2007
TSD :	ORD089452353
WS Num:	1
Transporter:	ORQ000019570
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H111
EPA Waste Codes:	D008
Waste Description:	Lead Contaminated Soil
Total Amt Of Waste Stream Generated in Reporting Yr 1:	13605
Total Amt Of Waste Stream Generated in Reporting Yr 2:	13605

Manifest:

Year :	2006
RCRA Id :	ORD009055534
Inactive :	Not reported
Status:	Large quantity generator

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Manifest : 001822718
Ship Date : 10/23/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 56000
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 001822717
Ship Date : 10/23/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 62000
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 001822720
Ship Date : 10/24/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 66000
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 001822782
Ship Date : 11/16/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 30000

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 001822790
Ship Date : 11/17/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 2200
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 001822711
Ship Date : 10/12/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 64000
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 001822714
Ship Date : 10/12/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 67000
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 001822716
Ship Date : 10/13/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 68000
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 001822719
Ship Date : 10/24/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 63900
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 70506
Ship Date : 07/05/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAH000012450
Ship Qty : 600
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Click this hyperlink while viewing on your computer to access
4 additional OR_MANIFEST: record(s) in the EDR Site Report.

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported

ODEQ STATE SUPERFUND SITE NU WAY OIL CO (Continued) **1000435885**

Status: Large quantity generator
Manifest : 001822712
Ship Date : 10/12/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 64000
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 001822713
Ship Date : 10/12/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 64000
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD009055534
Inactive : Not reported
Status: Large quantity generator
Manifest : 001822715
Ship Date : 10/13/2006
TSD : ORD089452353
WS Num: Not reported
Transporter: WAD988516829
Ship Qty : 64000
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D008
Waste Description: Lead impacted soil
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

92
NNW
1/2-1
0.696 mi.
3674 ft.

SOUTH CARGO RELOAD RACK JET FUEL RELEASE
PORTLAND INTERNATIONAL AIRPORT (3 SITES)
PORTLAND, OR 97218

OR ECSI **S115330260**
OR VCP **N/A**

Relative:
Lower

Actual:
15 ft.

ECSI:

State ID Number:	5524
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	831
Investigation:	Suspect
FACA ID:	119158
Further Action:	0
Lat/Long (dms):	45 35 12.10 / -122 36 23.80
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	7
Qtr Section:	Not reported
Tax Lots:	600
Size:	Not reported
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	07/14/2014
Created Date:	02/28/2011
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Suspect
Decode For Legislative:	Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420

Alias Name: Port of Portland Airport (PDX)

Hazardous Release:

Substance ID.:	121995
Haz Release ID:	387985
Qty Released:	Not reported
Date Released:	Not reported
Update Date:	06/21/2012
Update By:	KTHIESS
Substance Code:	ECD226
Substance Name:	AVIATION - FUEL OIL
Substance Abbrev.:	Not reported

Narrative:

NARR ID:	5754065
NARR Code:	Contamination
Created By:	KTHIESS
Created Date:	06/21/2012
Updated By:	KTHIESS
Updated Date:	06/21/2012
Decode for NarcdID:	Contamination

NARR Comments: Aviation fuel (Jet A) released at three locations.

SOUTH CARGO RELOAD RACK JET FUEL RELEASE (Continued) **S115330260**

NARR ID: 5754064
NARR Code: General Site Description
Created By: KTHIESS
Created Date: 06/21/2012
Updated By: KTHIESS
Updated Date: 01/03/2013
Decode for NarcdID: General Site Description
NARR Comments: Three Jet-A aviation fuel release sites at Portland International Airport managed by Aircraft Service International Group evaluated by DEQ: 1. South Cargo Reload Rack Jet A release 2. Taxiway T fuel hydrant release 3. Bulk Fuel Storage (west end) ECSI 1832

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 02/28/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/28/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 01/31/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/28/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 06/20/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/02/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9413
Region: Northwestern Region
Complete Date: 06/20/2012

SOUTH CARGO RELOAD RACK JET FUEL RELEASE (Continued) **S115330260**

Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/20/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Closeout activities on completed project
Further Action: 0
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 10/17/2012
Rank Value: 1
Cleanup Flag: False
Created Date: 10/17/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Medium
Comments: Not reported

Action ID: 9451
Region: Northwestern Region
Complete Date: 12/06/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/03/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: 0
Comments: Not reported

Action ID: 9520
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/06/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: EXPANDED PRELIMINARY ASSESSMENT
Further Action: 0
Comments: Not reported

VCS:
ECS Site ID: 5524
Facility Size: Not reported
Action: EXPANDED PRELIMINARY ASSESSMENT

SOUTH CARGO RELOAD RACK JET FUEL RELEASE (Continued) **S115330260**

Start Date: 08/06/2013
End Date: Not reported
Facility Status: Active
Program: VCP
Latitude: 45.5867
Longitude: -122.6066

93
East
1/2-1
0.698 mi.
3683 ft.

MCBRIDE SLOUGH (M1-5 DITCH) **OR ECSI S111331876**
8000 BLOCK, NE ALDERWOOD RD. **OR VCP N/A**
PORTLAND, OR 97218

Relative:
Lower

Actual:
10 ft.

ECSI:
State ID Number: 5676
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 122216
Further Action: 0
Lat/Long (dms): 45 34 28.90 / -122 34 55.60
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 9
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: SMILLER
Update Date: 09/13/2012
Created Date: 11/30/2011
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported

Hazardous Release:
Substance ID.: 121059
Haz Release ID: 387886
Qty Released: Not reported
Date Released: Not reported
Update Date: 11/30/2011
Update By: SMILLER
Substance Code: 1336-36-3
Substance Name: PCBs
Substance Abbrev.: Not reported
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported

MCBRIDE SLOUGH (M1-5 DITCH) (Continued) **S111331876**

Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317029
Sub Alias Name: BIPHENYL,POLYCHLORO-
Substance Alias ID: 317030
Sub Alias Name: CHLORINATED BIPHENYL
Substance Alias ID: 317031
Sub Alias Name: CHLOROBIPHENYL
Substance Alias ID: 317032
Sub Alias Name: POLYCHLORINATED BIPHENYLs
Substance Alias ID: 317033
Sub Alias Name: POLYCHLOROBIPHENYL
Sampling Result ID: 350272
Feature Id: 0
Hazard Release Id: 387886
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: 08/03/2011
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: range- 24-102ug/kg
Last Update By: SMILLER
Update Date: 11/30/2011
Decode for MediumID: Sediment
Sampling Result ID: 350626
Feature Id: 0
Hazard Release Id: 387886
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 06/01/2013
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 485ug/kg total PCBs in 0-0.5ft.
Last Update By: SMILLER
Update Date: 09/23/2013
Decode for MediumID: Sediment

Substance ID.: 121615
Haz Release ID: 387887
Qty Released: Not reported

MCBRIDE SLOUGH (M1-5 DITCH) (Continued) **S111331876**

Date Released: Not reported
Update Date: 11/30/2011
Update By: SMILLER
Substance Code: 72-55-9
Substance Name: DDE,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 319200
Sub Alias Name: BIS(p-CHLOROPHENYL)-1,1-DICHLOROETHYLENE,2,2-
Substance Alias ID: 319201
Sub Alias Name: DICHLORODIPHENYL DICHLOROETHYLENE,p,p'-
Substance Alias ID: 319202
Sub Alias Name: DICHLOROETHENYLIDENE)BIS(4-CHLOROBENZENE),1,1'-(-
Sampling Result ID: 350273
Feature Id: 0
Hazard Release Id: 387887
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: 08/03/2011
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Range 3-9ug/kg
Last Update By: SMILLER
Update Date: 11/30/2011
Decode for MediumID: Sediment
Sampling Result ID: 350625
Feature Id: 0
Hazard Release Id: 387887
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 09/01/2013
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 36 ug/kg
Last Update By: SMILLER
Update Date: 09/23/2013
Decode for MediumID: Sediment

Substance ID.: 121374
Haz Release ID: 387888
Qty Released: Not reported
Date Released: Not reported
Update Date: 11/30/2011
Update By: SMILLER
Substance Code: 50-32-8
Substance Name: BENZO(a)PYRENE

MCBRIDE SLOUGH (M1-5 DITCH) (Continued) **S111331876**

Substance Abbrev.: Not reported
Substance Category ID: 8476
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8476
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318559
Sub Alias Name: B(a)P
Substance Alias ID: 318560
Sub Alias Name: BENZOPYRENE,3,4-
Substance Alias ID: 318561
Sub Alias Name: BENZPYRENE,3,4-
Substance Alias ID: 318562
Sub Alias Name: BP
Sampling Result ID: 350274
Feature Id: 0
Hazard Release Id: 387888
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: 08/03/2011
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: range 0.2-1.27 mg/kg
Last Update By: SMILLER
Update Date: 11/30/2011
Decode for MediumID: Sediment

Narrative:
NARR ID: 5753773
NARR Code: Site Contacts
Created By: SMILLER
Created Date: 01/04/2012
Updated By: SMILLER
Updated Date: 11/20/2014
Decode for NarcdID: Site Contacts
NARR Comments: Multnomah County Drainage District Byron Woltersdorf, PE, District Engineer 1880 NE Elrod Dr. Portland Oregon, 97211 (503) 281-5675 x308 (503) 200-0458 Cell (503) 281-0392 Fax bwoltersdorf@mcdd.org Port of Portland Stan Jones Aviation Environmental Compliance Manager 503.415.6679 Stan.Jones@portofportland.com PO Box 3529 Portland, OR 97208-3529 The physical address is: 7200 NE Airport Way, Portland, OR 97218 Adam Reese, R.G. Project Manager, Geology Group areese@ashcreekassociates.com Ash Creek Associates, Inc. 3015 SW 1st Avenue Portland, Oregon 97201 503-924-4704 ext. 109 (office) 503-502-2726 (mobile) Miles Newmark(neighboring property owner) 503-973-9207 mnewmark@pinnaclefamily.com 6950 NE 82nd Ave 7250 NE Alderwood

MCBRIDE SLOUGH (M1-5 DITCH) (Continued) **S111331876**

NARR ID: 5753730
NARR Code: Data Sources
Created By: SMILLER
Created Date: 11/30/2011
Updated By: SMILLER
Updated Date: 04/28/2015
Decode for NarcdID: Data Sources
NARR Comments: Ditch Maintenance Sediment Sampling Report- M1-5(McBride Slough) Columbia Corridor Drainage Districts. October 27, 2011 RI/RA/SCE Summary Report McBride Slough. January 6, 2014. prepared by Apex. McBride Slough Feasibility Study. February 26, 2015. Prepared by Apex. Not reported

NARR ID: 5753736
NARR Code: General Site Description
Created By: SMILLER
Created Date: 11/30/2011
Updated By: SMILLER
Updated Date: 10/24/2013
Decode for NarcdID: General Site Description
NARR Comments: McBride Slough(M1-5 ditch) orginates near the SE corner of Portland International Airport and flows under Alderwood Rd. Water is directed through a long culvert and the mainstem Columbia Slough east of Alderwood Rd.

NARR ID: 5753735
NARR Code: Hazardous Substance/Waste Types
Created By: SMILLER
Created Date: 11/30/2011
Updated By: SMILLER
Updated Date: 11/30/2011
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: PCBs, PAHs, Pesticides

NARR ID: 5753731
NARR Code: Manner of Release
Created By: SMILLER
Created Date: 11/30/2011
Updated By: SMILLER
Updated Date: 11/30/2011
Decode for NarcdID: Manner of Release
NARR Comments: unknown

NARR ID: 5753732
NARR Code: Media Contamination
Created By: SMILLER
Created Date: 11/30/2011
Updated By: SMILLER
Updated Date: 11/30/2011
Decode for NarcdID: Media Contamination
NARR Comments: McBride Slough sediment.

NARR ID: 5754124
NARR Code: Pathways Other Hazards
Created By: SMILLER
Created Date: 08/03/2012
Updated By: SMILLER

MCBRIDE SLOUGH (M1-5 DITCH) (Continued) **S111331876**

Updated Date: 08/03/2012
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: [8/3/12 SAM/SRS] During historic Portland International Airport operations, hazardous substance releases likely occurred to McBride Slough as a result of contaminated storm water runoff. The facility currently operates under a stormwater discharge permit.

NARR ID: 5753734
NARR Code: Remedial Action
Created By: SMILLER
Created Date: 11/30/2011
Updated By: SMILLER
Updated Date: 10/25/2018
Decode for NarcdID: Remedial Action
NARR Comments: [11/30/11 SAM/ICP] Mutlnomah County Drainage District(MCDD) collected and tested sediments in McBride Slough as a part of sediment removal for floodwater conveyance. Sediment has elevated levels of PCBs, PAHs, and pesticides in both dredge material and proposed new leave surfaces. [1/4/12 SAM/ICP] DEQ approved emergency action work plan Dec 22, 2011. MCDD stockpiled dredged sediments within the channel for floodwater conveyance. Removal of sediment from channel is expected to take place in future. [8/3/12 SAM/VCP] Port of Portland signed a consent order in July 2012 to complete a Remedial Investigation, Risk Assessment, Source Control and a Feasiblity Study for McBride Slough. [4/25/13 SAM/VCP] DEQ approved project Work Plan on January 14, 2013. [4/30/14 SAM/VCP] The Port of Portland submitted a RI/RA/Source Control report in January 2014. In order to keep the project moving forward DEQ recommended revising the remedial investigation/ risk assessment and continue to work on the feasibility study for contaminated sediment concurrently with the stormwater source control evaluation. [4/28/15 SAM/VCP] The Port of Portland submitted the Feasibility Study on February 23, 2015. The proposed alternative includes flood control maintenance dredging of approximately 2-5 feet, afterwards an activated carbon amendment will treat residual sediment contamination. Bank repair will occur as needed. [7/21/15 VCP/SAM] Record of Decision completed July 18, 2015. The selected remedial action includes: flood control maintenance dredging of approximately 2-5 feet and removal of previously stockpiled material, afterwards an activated carbon amendment will treat residual sediment contamination. Bank repair will occur as needed. Long term monitoring and institutional controls will be developed. Changes were made to the remedial action proposed in the Staff Report based on public comments to expand measures to ensure protection of sensitive species that may be present at the site. The basic elements of the selected remedy however are the same as those presented in the staff report. [12/19/2016 VCP/SAM] RD/RA consent judgment negotiations complete for sediment cleanup; Multnomah county court entered a Judgment on 12/14/2016. The Port continues to investigate upland stormwater sources with data collection. [1/26/2018 VCP/SAM] DEQ approved the Remedial Action Final Design in September 2017. Implementation is expected to occur summer 2018. [6/4/2018 VCP/SAM} Remedial Action will occur between June and October 2018. [10/25/18 VCP/SAM] Due to production delays, sediments west of NE Alderwood will be dredged/capped in 2018 and east of NE Aldewood Rd will be dredged/capped in 2019.

NARR ID: 5753733

MCBRIDE SLOUGH (M1-5 DITCH) (Continued) **S111331876**

NARR Code: Substances of Concern
Created By: SMILLER
Created Date: 11/30/2011
Updated By: SMILLER
Updated Date: 11/30/2011
Decode for NarcdID: Substances of Concern
NARR Comments: PCBs, PAH, Pesticides

NARR ID: 5754196
NARR Code: Health Threats
Created By: SMILLER
Created Date: 09/13/2012
Updated By: SMILLER
Updated Date: 09/13/2012
Decode for NarcdID: Health Threats
NARR Comments: [9/13/12 SAM/VCP] Sediments above Columbia Slough ecological baseline concentrations for PCBs and pesticides(DDx).

NARR ID: 5757186
NARR Code: 1922
Created By: SMILLER
Created Date: 06/04/2018
Updated By: SMILLER
Updated Date: 06/04/2018
Decode for NarcdID: Current Site Summary Statement
NARR Comments: [June 2018] Remedial action will occur between June-October 2018. Remedial actions include: flood control maintenance dredging of approximately 2-5 feet of sediment and removal of previously stockpiled material, afterwards an activated carbon amendment will treat residual sediment contamination. Bank repair will occur as needed. Background: During historic Portland International Airport operations, hazardous substance releases, including PCBs, PAHs and metals likely occurred to McBride Slough as a result of contaminated storm water runoff. In 2011, DEQ approved emergency action dredging of contaminated sediments for floodwater conveyance. Sediments were stockpiled onsite. In 2012, Port of Portland signed a consent order to complete cleanup of McBride Slough sediments.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 11/30/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 11/30/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 09/13/2012
Rank Value: Not reported
Cleanup Flag: False

MCBRIDE SLOUGH (M1-5 DITCH) (Continued) **S111331876**

Created Date: 11/30/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

Action ID: 9442
Region: Northwestern Region
Complete Date: 07/03/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/06/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: 0
Comments: Not reported

Action ID: 9412
Region: Northwestern Region
Complete Date: 07/03/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/03/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Consent Order
Further Action: 0
Comments: Not reported

Action ID: 9484
Region: Northwestern Region
Complete Date: 03/31/2014
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/03/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 09/13/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/13/2012

MCBRIDE SLOUGH (M1-5 DITCH) (Continued) **S111331876**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: 0
Comments: Not reported

Action ID: 9429
Region: Northwestern Region
Complete Date: 07/18/2015
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/01/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: 0
Comments: Not reported

Action ID: 9494
Region: Northwestern Region
Complete Date: 07/18/2016
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/21/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RECORD OF DECISION
Further Action: 0
Comments: Not reported

Action ID: 9442
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/29/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: 0
Comments: Not reported

Action ID: 9473
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/19/2016
Decode for AgencyID: Department of Environmental Quality

MCBRIDE SLOUGH (M1-5 DITCH) (Continued) **S111331876**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL DESIGN
Further Action: 0
Comments: Not reported

Action ID: 9469
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/04/2018
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: 0
Comments: Not reported

VCS:
ECS Site ID: 5676
Facility Size: Not reported
Action: REMEDIAL ACTION
Start Date: 06/04/2018
End Date: Not reported
Facility Status: Active
Program: VCP
Latitude: 45.5747
Longitude: -122.5821

P94 **KUHNAU PROPERTY** **OR ECSI S111766400**
West **6915 NE 46TH AVE.** **OR VCP N/A**
1/2-1 **PORTLAND, OR 97218**
0.701 mi.
3700 ft. **Site 2 of 2 in cluster P**

Relative:
Higher

Actual:
25 ft.

ECSI:
State ID Number: 5692
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: No Further Action
FACA ID: 122957
Further Action: 0
Lat/Long (dms): 45 34 26.00 / -122 36 58.30
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: BC

KUHNAU PROPERTY (Continued) **S111766400**

Tax Lots: 100
Size: 1.02 acres
NPL: False
Orphan: False
Updated By: SMILLER
Update Date: 10/14/2013
Created Date: 02/16/2012
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Not reported

Narrative:
NARR ID: 5754007
NARR Code: Data Sources
Created By: SMILLER
Created Date: 04/13/2012
Updated By: SMILLER
Updated Date: 10/14/2013
Decode for NarcdID: Data Sources
NARR Comments: [SAM/ICP 4/13/2012] Phase I Environmental Site Assessment: Undeveloped Lot 6915 NE 46th Ave, Portland, OR. NW Envirosearch, Inc. February 14, 2008. Site Assessment Draft Report. Kuhnau Property. NW Envirosearch. July 3, 2013

NARR ID: 5754008
NARR Code: General Site Description
Created By: SMILLER
Created Date: 04/13/2012
Updated By: SMILLER
Updated Date: 04/13/2012
Decode for NarcdID: General Site Description
NARR Comments: Undeveloped Lot on west side of NE 46th Ave near Nuway Oil(#88) and the Columbia Slough.

NARR ID: 5754030
NARR Code: Manner of Release
Created By: SMILLER
Created Date: 05/08/2012
Updated By: SMILLER
Updated Date: 05/08/2012
Decode for NarcdID: Manner of Release
NARR Comments: Unknown

NARR ID: 5754881
NARR Code: Pathways Other Hazards
Created By: SMILLER
Created Date: 10/14/2013
Updated By: SMILLER
Updated Date: 10/14/2013
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: [10/14/13 SAM/ICP] Based on the Phase I report and DEQ site visit, contaminants of interest include polychlorinated biphenyls (PCBs), metals, volatile organic compounds (VOCs), total petroleum hydrocarbons (TPH), polyaromatic hydrocarbons (PAHs) and asbestos. Complete exposure pathways considered relevant to this site are: Surface soil dermal contact and inhalation of indoor vapors for

KUHNAU PROPERTY (Continued) **S111766400**

future occupational workers. Subsurface soil dermal contact and inhalation of outdoor vapors for construction and excavation workers. Future use of the site is expected to remain general industrial.

NARR ID: 5754031
NARR Code: Remedial Action
Created By: SMILLER
Created Date: 05/08/2012
Updated By: SMILLER
Updated Date: 10/14/2013
Decode for NarcdID: Remedial Action
NARR Comments: [5/8/12 SAM/ICP] Residual releases from Nuway Oil (ECSI#88) may extend to the NW corner of the property. Additional characterization is needed to determine extent. Fill soils should be characterized. [12/6/12 SAM/ICP] Draft Site Investigation Plan submitted Sept 2012. DEQ commented October 2012 and waiting revisions. [10/14/13 SAM/ICP] July 2013 Site Assessment Report Envirosearch summarized the environmental actions performed to further characterize the property. Three asbestos samples were collected in the northeast corner where suspected asbestos containing material was found in 2008. Surface soil was characterized using a multi-incremental sampling approach. Contaminants of interest (COI), based on contaminants detected at Nu-way Oil and the February 2008 Phase I Site Assessment, detected in surface soils were analyzed in four borings advanced to characterize subsurface fill and depth of native soils. Two groundwater samples were collected and analyzed for COIs from GP 1 and GP 2. An NFA determination is recommended for the Kuhnau Property site based on the following: Surface soils sampled onsite are protective for occupational and excavation workers. Subsurface soils are below occupational and excavation risk-based concentrations at thirteen of fourteen locations. Heterogeneous fill, including asphalt, may be responsible for the isolated higher concentration. Groundwater is not used onsite for any purpose and the area is supplied by a public water system. PAHs, VOCs and metals were detected, however, below applicable RBCs. Groundwater meets applicable risk-based concentrations, except for potential discharge to surface water. Considering the low magnitude and small area of the screening level exceedance, relatively large distance to the Slough and limited mobility of the contaminant in question (metals), exceedance of these criteria represents a low probability of risk. Surface soils meet ecological risk-based concentrations, except lead for bird populations, which is 1.5 times higher. Considering the site is zoned for industrial use and given the current habitat quality, exceedance of these criteria represents a low probability of risk. Migration of surface soil contaminants through stormwater runoff is unlikely because stormwater is expected to infiltrate onsite.

NARR ID: 5754028
NARR Code: Site History
Created By: SMILLER
Created Date: 05/08/2012
Updated By: SMILLER
Updated Date: 05/08/2012
Decode for NarcdID: Site History
NARR Comments: [5/8/12 SAM/ICP] Before 1961 the site was used as a residence and perhaps farming operations. Buildings appear to be removed from site in late 1960s, based on historic photos. From 1961 until 2011 the

KUHNAU PROPERTY (Continued) **S111766400**

property was used sporadically for equipment storage. Fill soils were also brought on site. A culvert/pipe was installed by property owners to convey ponded water in NE 46th Ave through the site and to the ditch to the west of the property. The pipe was removed in 2011.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 02/16/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/16/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 04/12/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/16/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 10/14/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/12/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 10/14/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/14/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False

KUHNAU PROPERTY (Continued) **S111766400**

Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

VCS:
ECS Site ID: 5692
Facility Size: 1.02 acres
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 10/14/2013
End Date: 10/14/2013
Facility Status: Completed
Program: ICP
Latitude: 45.5739
Longitude: -122.6162

95
WSW
1/2-1
0.707 mi.
3735 ft.

AB FINISHING TECH
6724 NE 46TH AVE.
PORTLAND, OR 97218

OR ECSI **S111245465**
OR HSIS **N/A**
OR UIC

Relative:
Higher

Actual:
47 ft.

ECSI:
State ID Number: 871
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: No Further Action
FACA ID: 5116
Further Action: 0
Lat/Long (dms): 45 34 18.80 / -122 36 55.10
County Code: 26.00
Score Value: Not reported
Cerclis ID: 009422049
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: Not reported
Tax Lots: Not reported
Size: 0.5 acre
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 02/02/2012
Created Date: 03/24/1988
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Not reported
Alias Name: AB Plating

Hazardous Release:
Substance ID.: 121671
Haz Release ID: 385450
Qty Released: unknown

AB FINISHING TECH (Continued) **S111245465**

Date Released: unknown
Update Date: 03/24/1988
Update By: Not reported
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 346601
Feature Id: Not reported
Hazard Release Id: 385450
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 265 ug/L
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Narrative:
NARR ID: 5727339
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 04/04/2006
Decode for NarcdID: Contamination
NARR Comments: Metal sludges from NaOH bath were deposited on ground surface to dry out; until 1990 chromic and HCL acid wastes went to an on-site holding tank and four deep dry wells. (4/30/97 LSK/SAS) Site re-evaluated as part of review of all sites within the Columbia Slough Study Area. The site is located near Buffalo Slough and Whitaker Slough, both of which have been evaluated as part of the city's Screening Level Risk Assessment (SLRA) of the Columbia Slough. Whitaker Slough has been identified as one of the five areas containing the most contaminated sediments, with lead and chromium of the highest concern. The east end of Buffalo Slough (portion closest to the site) is contaminated with chromium. Chromic acid has been

AB FINISHING TECH (Continued) **S111245465**

used historically on the site and has been found in groundwater beneath the site. An on-site storm drain system discharges to the Slough. (4/12/00 BAG/SRP) Follow-up investigations revealed that storm drains discharge to an on-site drywell, not to the Columbia Slough.

NARR ID: 5727340
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: EPA CERCLA Preliminary Assessment and Site Investigation

NARR ID: 5727341
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Sodium hydroxide (sludge), chromic acid (liquid), hydrochloric acid (liquid). Toxic and corrosive.

NARR ID: 5727342
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Location
NARR Comments: Due south of Portland Airport and Broadmoor Golf Club.

NARR ID: 5727343
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Until 1990, wastewater was discharged to soil and groundwater via on-site drywells.

NARR ID: 5727344
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 03/16/2006
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: EPA determined amount of waste was small; depth to groundwater about 40'-50' with discharge to the Columbia River; wells are located within one mile of the site; located in industrial area. E&E (EPA contractor) conducted site inspection in 1988 and sampled drinking water well used by AB Finishing. Sample results are: 149 ug/L and 265 ug/L hexavalent chromium. EPA Drinking Water Primary Standard is 50

AB FINISHING TECH (Continued) **S111245465**

ug/L. EPA evaluated this as a <quot>low priority<quot> site under the Federal Superfund program.

NARR ID: 5727345
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 04/04/2006
Decode for NarcdID: Remedial Action
NARR Comments: An EPA PA was performed prior to the state PA. A 1988 sample from an on-site well contained hexavalent chromium at up to five times EPA's Primary Drinking Water standard. The use of chromium and disposal into drywells ceased in 1990, but large quantities of chromium probably entered groundwater. 1993 sampling of the on-site well suggests that chromium levels in groundwater beneath the site have decreased significantly since 1988. There are no immediate exposure pathways within at least a 1-mile radius of the site, and bottled water is used at the facility. Nevertheless, the possibility that large quantities of chromium have been disposed of at AB calls for additional action. Under medium priority, a groundwater investigation is recommended, to determine the extent and magnitude of dissolved chromium originating from AB's historical waste disposal methods. The facility should be added to the Confirmed Release List. (4/12/00 BAG/SRP) A site investigation was conducted in September-October 1999. Chromium was not detected in water samples from supply well. Soil samples were collected across site and analyzed for metals. No significant contamination was found, except for one location with elevated arsenic. This sample was collected from fill material obtained from Portland DOT, which was generated during Columbia Blvd. road reconstruction. A removal action will be performed in spring 2000. (2/12/01 BAG/SRP) Removal action completed in August 2000. Removal action report issued in October 2000. DEQ issued public notice on proposed No Further Action (NFA) on November 11, 2000, and issued an NFA letter December 1, 2000.

Administrative Action:
Action ID: 9444
Region: 0
Complete Date: 05/29/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/31/2007
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 12/04/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality

AB FINISHING TECH (Continued) **S111245465**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: Not reported
Comments: Not reported

Action ID: 9417
Region: Northwestern Region
Complete Date: 02/13/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility delisted from Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9418
Region: Northwestern Region
Complete Date: 02/13/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility delisted from Inventory List
Further Action: Not reported
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 04/01/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: Not reported
Comments: Not reported

Action ID: 9491
Region: Northwestern Region
Complete Date: 09/27/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region

AB FINISHING TECH (Continued) **S111245465**

Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: Not reported
Comments: Not reported

Action ID: 9517
Region: Northwestern Region
Complete Date: 04/01/1999
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SRS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 04/30/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9484
Region: Northwestern Region
Complete Date: 11/21/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 09/14/1997
Rank Value: 7
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action

AB FINISHING TECH (Continued) **S111245465**

Action Code Flag: False
Action: VCS Waiting List
Further Action: Not reported
Comments: Not reported

Action ID: 9514
Region: Not reported
Complete Date: 04/08/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Site Inspection Prioritization
Further Action: Not reported
Comments: Not reported

Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 07/18/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 07/18/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False

AB FINISHING TECH (Continued) **S111245465**

Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9488
Region: Headquarters
Complete Date: 02/25/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing on Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Headquarters
Complete Date: 08/14/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9503
Region: Headquarters
Complete Date: 01/15/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation/Feasibility Study recommended

AB FINISHING TECH (Continued) **S111245465**

Further Action: High
Comments: Not reported

Action ID: 9499
Region: Not reported
Complete Date: 01/14/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Headquarters
Complete Date: 10/28/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9439
Region: Headquarters
Complete Date: 04/15/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9512
Region: Not reported
Complete Date: 11/15/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Screening Site Inspection 1
Further Action: Not reported

AB FINISHING TECH (Continued) **S111245465**

Comments: Not reported

Action ID: 9457
Region: Not reported
Complete Date: 08/01/1984
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Basic Preliminary Assessment
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Headquarters
Complete Date: 05/22/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Headquarters
Complete Date: 08/14/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Headquarters
Complete Date: 08/30/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

AB FINISHING TECH (Continued) **S111245465**

Action ID: 9448
Region: Headquarters
Complete Date: 02/25/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9456
Region: Headquarters
Complete Date: 01/14/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132173
Operation Status: Active
Common Name: AB Finishing Tech
Yrs of Operation: 1936 to present
Comments: Metal Plating
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Active
Operations SIC Id: 195033
SIC Code: 3471
Created By: Not reported
Created Date: 12/17/2002

HSIS:
Facility ID: 047186
Department Or Division Of Company: WHSE
Extremely Hazardous Substance: N
Facility Has Written Emergency Plan: Y
Contains 112R: N
NAICS Code 1: 332813
NAICS Desc 1: ELECTROPLATING, PLATING, POLISHING, ANODI
NAICS Code 2: 327910
NAICS Desc 2: ABRASIVE PRODUCT MFG
Manager Name: CRAIG YOUNG
Business Phone: 5032827239
Mailing Address: PO BOX 20546
Mailing City: PORTLAND
Mailing State: OR

AB FINISHING TECH (Continued) **S111245465**

Mailing Zip:	972940546
No. of Employees:	7
Day Phone:	5037018581
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	CRAIG YOUNG
Emergency Procedure:	EMPLOYEE AREA
Business Type:	METAL FINISHING
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	CAUSTIC BEADS
Physical Description:	SOLID
Case Number:	1310732
Facility Id:	047186
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	D
Description:	STEEL DRUM

AB FINISHING TECH (Continued) **S111245465**

Type Code:	C
Temperature Description:	TANK INSIDE BUILDING
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	GREATER THAN NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	5
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	SODIUM HYDROXIDE
United Nations/north America 4 Digit Class Number:	1823
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Reactive Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.4
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	CAUSTIC BEADS
United Nations/north America 4 Digit Class Number:	1823
Chemical Abstract Service Identifier Number:	1310732
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Reactive Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.4
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

OR UIC:

UIC Well #:	1
Type:	5W20
Type Description:	Industrial Process Water And Waste Disposal
Status:	Temporarily Abandoned
UIC Number:	10269
Facility Status:	Registered & not RA
Lat/Long:	45.5718 / -122.6152

AB FINISHING TECH (Continued) **S111245465**

UIC Well #: 2
Type: 5W20
Type Description: Industrial Process Water And Waste Disposal
Status: Temporarily Abandoned
UIC Number: 10269
Facility Status: Registered & not RA
Lat/Long: 45.5718 / -122.6152

UIC Well #: 3
Type: 5W20
Type Description: Industrial Process Water And Waste Disposal
Status: Temporarily Abandoned
UIC Number: 10269
Facility Status: Registered & not RA
Lat/Long: 45.5718 / -122.6152

UIC Well #: 4
Type: 5W20
Type Description: Industrial Process Water And Waste Disposal
Status: Temporarily Abandoned
UIC Number: 10269
Facility Status: Registered & not RA
Lat/Long: 45.5718 / -122.6152

UIC Well #: 5
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 10269
Facility Status: Registered & not RA
Lat/Long: 45.5718 / -122.6152

96
SSE
1/2-1
0.712 mi.
3758 ft.

SEASTROM PROPERTY
6640 NE PORTLAND HWY.
PORTLAND, OR 97218

OR ECSI **S109608244**
OR BROWNFIELDS **N/A**
OR MANIFEST

Relative:
Higher

Actual:
95 ft.

ECSI:
State ID Number: 1480
Brown ID: Brownfield Site - DEQ Funding Assistance
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 8140
Further Action: 260
Lat/Long (dms): 45 33 50.40 / -122 35 40.20
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 17
Qtr Section: Not reported
Tax Lots: Not reported

SEASTROM PROPERTY (Continued) **S109608244**

Size: Not reported
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 07/19/2016
Created Date: 12/21/1993
Decode For RegionID: Northwest Region
Decode For BrownID: Brownfield Site - DEQ Funding Assistance
Decode For Furtheract: Low
Decode For Investstat: Suspect
Decode For Legislative: Not reported

Hazardous Release:
Substance ID.: 122015
Haz Release ID: 384511
Qty Released: unknown
Date Released: unknown
Update Date: 10/21/1994
Update By: Not reported
Substance Code: ECD282
Substance Name: OIL - WASTE
Substance Abbrev.: Not reported
Substance Category ID: 8541
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8541
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 344916
Feature Id: Not reported
Hazard Release Id: 384511
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/01/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: (oil and grease) 98,000 ppm
Last Update By: ars
Update Date: 10/21/1994
Decode for MediumID: Soil

Substance ID.: 121668
Haz Release ID: 384512
Qty Released: unknown
Date Released: unknown
Update Date: 10/21/1994
Update By: Not reported
Substance Code: 7440-43-9

SEASTROM PROPERTY (Continued) **S109608244**

Substance Name: CADMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319291
Sub Alias Name: CD
Sampling Result ID: 344917
Feature Id: Not reported
Hazard Release Id: 384512
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/01/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: (TCLP) 0.96 mg/l
Last Update By: ars
Update Date: 10/21/1994
Decode for MediumID: Soil

Substance ID.: 121671
Haz Release ID: 384513
Qty Released: unknown
Date Released: unknown
Update Date: 10/21/1994
Update By: Not reported
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 344918

SEASTROM PROPERTY (Continued) **S109608244**

Feature Id: Not reported
Hazard Release Id: 384513
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/01/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: (TCLP) 0.05 mg/l
Last Update By: ars
Update Date: 10/21/1994
Decode for MediumID: Soil

Substance ID.: 121639
Haz Release ID: 384514
Qty Released: unknown
Date Released: unknown
Update Date: 10/21/1994
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 344919
Feature Id: Not reported
Hazard Release Id: 384514
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/01/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: (TCLP) 0.53 mg/l
Last Update By: ars
Update Date: 10/21/1994
Decode for MediumID: Soil

SEASTROM PROPERTY (Continued) **S109608244**

Narrative:

NARR ID: 5733735
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: In February 1993, in response to a complaint from an adjacent property owner, DEQ RCRA inspected this site, finding that it appeared to have been abandoned. RCRA staff observed numerous 55- and 5-gal. containers, and a variety of other containers stored throughout the property, mostly on a paved area in front of the site building. Many containers were corroded, stained, and in poor condition, and a few showed visible evidence of leakage. The property belongs to Rosalyn Seastrom, whose late husband had used the site to store surplus materials such as chemicals from the US Dept of Defense (DOD). Some of the DOD materials appeared to have expiration dates from the 1960s and 1970s. After the RCRA inspection, DEQ informed Mrs. Seastrom that the containers represented a potential threat to the environment and to public safety, and that assessment and stabilization of the site was required.

NARR ID: 5733736
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: <quot>Summary Report, DEQ Task Order 93-40, for Seastrom Property, 6640 NE Portland HWY, Portland, OR,<quot> Riedel Environmental Services, 5/23/94.

NARR ID: 5733737
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: oil range hydrocarbons; heavy metals

NARR ID: 5733738
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Releases from several leaking drums stored outdoors; time of release unknown

NARR ID: 5733739
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002

SEASTROM PROPERTY (Continued) **S109608244**

Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Most of the site is paved with asphalt or concrete, and the floor of the building is concrete.

NARR ID: 5733740
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: In November 1993, DEQ directed Riedel Environmental Services to conduct an emergency removal of all materials of concern, using state funds. Riedel's work at the site consisted of securing the property; sampling containers for hazard categorization and grouping/bulking similar materials; arranging for off-site disposal of these materials; collecting near-surface soil samples at DEQ's direction; and evaluating the potential hazards of chemicals stored within the building. Riedel removed about 220 containers in which the following general compounds had been stored: acetone and alcohol; acid resins and emulsions; floor waxes; greases used to inhibit corrosion; paints and paint removers; petroleum-based oils, greases, solvents, and thinners; and sodium hydroxide-based soaps (solid and liquid). Following the removal, DEQ directed Riedel in the collection of six surface soil samples to determine if leaking drums or unknown past practices had caused contamination. Samples showed elevated levels of heavy hydrocarbons and slightly elevated levels of cadmium, chromium, and lead in one area. Some chemicals remain inside the building. DEQ plans no further removals or stabilization, and Site Assessment considers the site a low priority.

NARR ID: 5750220
NARR Code: Site History
Created By: MGREENB
Created Date: 02/28/2008
Updated By: MGREENB
Updated Date: 02/28/2008
Decode for NarcdID: Site History
NARR Comments: Site at which the late Mr. Seastrom stored surplus chemicals purchased from DOD (about 100 drums), hoping to sell them. He left mess to his 78-year old widow. Rai Peterson had been working with her since 2/93; 11/3/93 F. Hansen decided to conduct an emergency HSRAF removal and petition DOD for cost recovery; Mary Wahl wanted PA done concurrently with removal, to assess need for future cleanup. Visit site 12/2/93 w/Rai; haz-catting and removal in progress (Riedel project manager is Chris Davies 286-4656). Most of site paved, so even with releases from corroded drums, subsurf. soil and GW contam. may be unlikely. 12/14 prepare sampling plan per Ed Wilson. 12/20 & 12/21 visit site to prepare for and oversee Riedel soil sampling; 6 samples collected 12/21, with analyses done per contract. Results 2/2/94: high O&G in spots, some elevated metals, especially lead, chromium, and cadmium in localized areas, no PAHs (but v. high detec. limit), insignif. VOCs. 6/16/94 complete SAPS, str. recom.: low prior. for further sampling/limited soil removal. 6/24 mtg. at HQ to discuss cost recovery, site assessment; it looks like DEQ has

SEASTROM PROPERTY (Continued) **S109608244**

completed its work at site. 6/27 revise str. recom. slightly after RP review, submit to Rosen; also fill out site rpt. 8/29/94 receive Rosen approval; finalize str. recom. and send copy to Heather; complete site rpt., send to Angela. Also send options ltr. to Mrs. Seastrom, copy R. Peterson and DOD contact. Place site on CRL HOLD, in view of fact that DOD may decide to conduct further work at site.

Administrative Action:
Action ID: 9424
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9471
Region: Not reported
Complete Date: 01/18/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: RCRA Corrective Action
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 08/30/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9505
Region: Northwestern Region
Complete Date: 08/30/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region

SEASTROM PROPERTY (Continued) **S109608244**

Category: Remedial Action
Action Code Flag: False
Action: Site Confirmatory Sampling recommended
Further Action: Low
Comments: Not reported

Action ID: 9449
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 08/29/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132812
Operation Status: Inactive
Common Name: Seastrom Property
Yrs of Operation: unknown
Comments: Paved lot with one building, formerly used for chemical storage
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Inactive

OR BROWNFIELDS:
Geolocation Id: 8140
Status: Site Confirmatory Sampling recommended
Lat/Long: 45.564 / -122.594

OR MANIFEST:
Manifest Year: Manifest Year - 2008
EPA Id: ORQ000027585
Inactive Status: 2009-02-28 00:00:00
Organization Name: Not reported
Contact Name: John Hartley on behalf of DLA
Contact Telephone Number: Not reported
Mailing Address: Bldg 525, Castle Hall 3rd Flr.

SEASTROM PROPERTY (Continued) **S109608244**

Mailing City/State/Zip: Offutt AFB, NE 68113

Q97 **PIERCE PACIFIC MANUFACTURING** **OR ECSI** **S111252673**
WSW **6540 NE 42ND AVE.** **OR VCP** **N/A**
1/2-1 **PORTLAND, OR 97218** **OR UIC**
0.742 mi.
3918 ft. **Site 1 of 2 in cluster Q**

Relative: Higher

Actual: 75 ft.

ECSI:

State ID Number:	1092
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	832
Investigation:	No Further Action
FACA ID:	7628
Further Action:	0
Lat/Long (dms):	45 34 12.70 / -122 36 54.70
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	18
Qtr Section:	Not reported
Tax Lots:	Not reported
Size:	Not reported
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	02/02/2016
Created Date:	12/10/1990
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	No Further Action
Decode For Legislative:	Owner, operator or other party under state or federal authority

Hazardous Release:

Substance ID.:	121985
Haz Release ID:	384265
Qty Released:	unknown
Date Released:	unknown
Update Date:	01/01/2001
Update By:	Not reported
Substance Code:	ECD182
Substance Name:	HYDRAULIC OIL
Substance Abbrev.:	Not reported
Substance Category ID:	8535
Substance Category:	Petroleum Related Releases for OSPIRG Report
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8535
Substance Category:	Petroleum Related Releases for OSPIRG Report

PIERCE PACIFIC MANUFACTURING (Continued) **S111252673**

Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 344624
Feature Id: Not reported
Hazard Release Id: 384265
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: 03/01/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not reported
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:
NARR ID: 5731443
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (12/10/90 MM) A complainant alleged that Pierce Pacific dumped paints, thinners, and other solvents on the grounds and adjacent railroad tracks. A subsequent inspection of the facility found that all spent solvents and oils were collected in drums and picked up by a recycler. Inspection of the yard showed some significant staining. The main area affected is the south side of the yard adjacent to the railroad tracks. There is also staining down the railroad bank and in the area where drums of waste oil and solvent are stored.

NARR ID: 5755943
NARR Code: Data Sources
Created By: PSEIDEL
Created Date: 01/19/2016
Updated By: PSEIDEL
Updated Date: 01/19/2016
Decode for NarcdID: Data Sources
NARR Comments: 1/20/16 (PRS) 1) DEQ Site Assessment Program, Strategy Recommendation, April 12, 1994. 2)Point Source Solutions, LLC, 2015. Limited Subsurface Investigation Report, 6540 NE 42nd Avenue, September 10, 2015. 3)Point Source Solutions, LLC, 2015b. Phase 1 Report, 6540 NE 42nd Avenue, October 12, 2015.

NARR ID: 5731444
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002

PIERCE PACIFIC MANUFACTURING (Continued) **S111252673**

Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: hydraulic oil, waste oil, paint solvents

NARR ID: 5731445
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Unknown - hydraulic oil possibly from heavy equipment

NARR ID: 5731446
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: (12/10/90 MM) The site is bounded by railroad tracks to the south, beyond which is a densely populated residential neighborhood. To the north is an industrial area. Topography is flat with coarse sands to silts, probably with an upper clay horizon. NWR estimates a main soil area of 20 X 10 yards is affected, in addition to smaller stained areas. Groundwater is 90 feet below the site surface. There are two wells within a quarter mile (completed in 1940 and 1941); their uses are unknown.

NARR ID: 5731447
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 05/22/2003
Decode for NarcdID: Remedial Action
NARR Comments: (4/12/94 GMW/SAS) A conversation with the property owner in 3/94 revealed that in 1991, Pierce Pacific vacated the site, which is now leased. Hydraulic oil from heavy equipment may have stained the soil that was noted during a DEQ complaint inspection in 1990. This oil entered a drain or dry well of unknown construction. The owner intends to clean up the site independently. If this does not occur, Site Assessment recommends a preliminary assessment. This warrants low priority consideration, due to the relatively low toxicity of hydraulic oils and the depth to groundwater in this area. (11/10/97 LSK) Site re-evaluated as part of review of all sites within the Columbia Slough Study Area. Located 0.5 miles south of the Buffalo Slough.

NARR ID: 5755944
NARR Code: 1922
Created By: PSEIDEL
Created Date: 01/19/2016
Updated By: PSEIDEL
Updated Date: 01/19/2016
Decode for NarcdID: Current Site Summary Statement
NARR Comments: 1/20/2016 (PRS) In the 1994 strategy recommendation, DEQ documented a 1990 site inspection performed as follow up to a complaint. The

PIERCE PACIFIC MANUFACTURING (Continued) **S111252673**

inspection documented soil staining on the south side of the property, which was deemed to most likely be attributable to hydraulic oil. A phase I site assessment was completed in October 2015. No recognized environmental conditions (RECs) were noted for the site property. A site investigation was performed in September 2015, documenting the following work: 1) Geophysical survey to identify any unknown sub surface features ; 2) Identification of, and sampling at three dry wells; 3) Cleaning of an onsite septic tank, and sampling from a boring within the drain field. 4) Completion of and sampling two borings, one at each end of a former excavation pit believed to be from a previously removed underground storage tank; 5) Collection of two near surface composite soil samples from the southern area where staining was observed during the 1990 inspection. TPH in the heavy oil-range, consistent with hydraulic oil, was detected in the two composite samples of surface soil at 287 and 488 milligrams per kilogram (mg/kg), respectively. TPH was not detected in any other samples. Detected TPH concentrations are below DEQ generic risk-based concentrations (RBCs) for occupational workers. One of these samples was subsequently analyzed for volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs). VOCs and PCBs were not detected and PAHs were detected below DEQs risk based concentrations applicable for occupational workers. Based on presence of residual contaminants below DEQs acceptable risk levels, a no further action determination has been issued for the site.

Administrative Action:

Action ID:	9519
Region:	Northwestern Region
Complete Date:	01/06/2016
Rank Value:	Not reported
Cleanup Flag:	False
Created Date:	08/03/2015
Decode for AgencyID:	Department of Environmental Quality
Decode for RegionID:	Northwest Region
Category:	Remedial Action
Action Code Flag:	False
Action:	VCS Waiting List
Further Action:	0
Comments:	Not reported

Action ID:	9511
Region:	Northwestern Region
Complete Date:	01/20/2016
Rank Value:	Not reported
Cleanup Flag:	False
Created Date:	01/07/2016
Decode for AgencyID:	Department of Environmental Quality
Decode for RegionID:	Northwest Region
Category:	Remedial Action
Action Code Flag:	False
Action:	SITE INVESTIGATION
Further Action:	0
Comments:	Not reported

Action ID:	9443
Region:	Northwestern Region
Complete Date:	01/20/2016

PIERCE PACIFIC MANUFACTURING (Continued) **S111252673**

Rank Value: Not reported
Cleanup Flag: True
Created Date: 01/19/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9417
Region: Northwestern Region
Complete Date: 01/25/2016
Rank Value: Not reported
Cleanup Flag: True
Created Date: 01/25/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility delisted from Confirmed Release List
Further Action: 0
Comments: Not reported

Action ID: 9470
Region: Northwestern Region
Complete Date: 11/07/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Other remedial or investigative action recommended
Further Action: Medium
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 11/07/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: 0
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0

PIERCE PACIFIC MANUFACTURING (Continued) **S111252673**

Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9448
Region: Headquarters
Complete Date: 01/19/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9488
Region: Headquarters
Complete Date: 01/19/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing on Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Headquarters
Complete Date: 01/20/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 03/16/1994
Rank Value: 0
Cleanup Flag: False

PIERCE PACIFIC MANUFACTURING (Continued) **S111252673**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 03/16/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Northwestern Region
Complete Date: 03/17/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Low
Comments: Not reported

Action ID: 9465
Region: Headquarters
Complete Date: 07/26/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9428
Region: Headquarters
Complete Date: 10/28/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

PIERCE PACIFIC MANUFACTURING (Continued) **S111252673**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Extension requested by owner/operator
Further Action: Not reported
Comments: Not reported

Action ID: 9430
Region: Headquarters
Complete Date: 10/28/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Petition or request granted
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Not reported
Complete Date: 02/12/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 03/15/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9521
Region: Northwestern Region
Complete Date: 04/12/1994
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/22/2003
Decode for AgencyID: Department of Environmental Quality

PIERCE PACIFIC MANUFACTURING (Continued) **S111252673**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: OPTN
Further Action: 0
Comments: Not reported

Operations:

Operation Id: 132403
Operation Status: Inactive
Common Name: Pierce Pacific Manufacturing
Yrs of Operation: 11 (1980 - 1991)
Comments: retrofits heavy machinery for the logging industry Leased to an engine rebuilding business
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Inactive

Operation Id: 135948
Operation Status: Active
Common Name: BD Mack, Inc
Yrs of Operation: Not reported
Comments: BD Mack, Inc., a construction company currently has operations on site.
Updated Date: 01/19/2016
Updated By: PSEIDEL
Decode for OpstatID: Active

VCS:

ECS Site ID: 1092
Facility Size: Not reported
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 01/20/2016
End Date: 01/20/2016
Facility Status: Completed
Program: VCP
Latitude: 45.5702
Longitude: -122.6152

OR UIC:

UIC Well #: 1
Type: 4H
Type Description: Hazardous Facility Injection
Status: Temporarily Abandoned
UIC Number: 10860
Facility Status: Not Registered
Lat/Long: 45.570202 / -122.6155

UIC Well #: 1
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 15164
Facility Status: Registered & RA
Lat/Long: 45.570469 / -122.6153

UIC Well #: 2

PIERCE PACIFIC MANUFACTURING (Continued) **S111252673**

Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 15164
Facility Status: Registered & RA
Lat/Long: 45.570469 / -122.6153

UIC Well #: 3
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 15164
Facility Status: Registered & RA
Lat/Long: 45.570469 / -122.6153

98
NW
1/2-1
0.758 mi.
4001 ft.

AIRCRAFT SERVICE INTERNATIONAL, TAXIWAY F AREA **OR ECSI** **1006853450**
PORTLAND INTERNATIONAL AIRPORT **OR CRL** **N/A**
PORTLAND, OR 97218

Relative:
Lower

Actual:
14 ft.

ECSI:
State ID Number: 2240
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Listed on the CRL/Inventory
FACA ID: 40693
Further Action: 258
Lat/Long (dms): 45 35 .00 / -122 36 50.00
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 7
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 09/05/2013
Created Date: 08/11/1998
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Medium
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Not reported
Alias Name: South Cargo Reload Rack

Hazardous Release:
Substance ID.: 122012
Haz Release ID: 381944
Qty Released: Not reported

AIRCRAFT SERVICE INTERNATIONAL, TAXIWAY F AREA (Continued) **1006853450**

Date Released: Not reported
Update Date: 05/04/1999
Update By: Not reported
Substance Code: ECD275
Substance Name: TOTAL PETROLEUM HYDROCARBONS (TPH)
Substance Abbrev.: Not reported
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 340391
Feature Id: Not reported
Hazard Release Id: 381944
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 06/01/1997
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 3,070 ppm
Last Update By: jmw
Update Date: 04/05/1999
Decode for MediumID: Soil
Sampling Result ID: 340392
Feature Id: Not reported
Hazard Release Id: 381944
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: True
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Free product
Last Update By: jmw
Update Date: 04/05/1999
Decode for MediumID: Groundwater

Substance ID.: 121608
Haz Release ID: 381945
Qty Released: Not reported
Date Released: Not reported

AIRCRAFT SERVICE INTERNATIONAL, TAXIWAY F AREA (Continued) **1006853450**

Update Date: 05/04/1999
Update By: Not reported
Substance Code: 71-43-2
Substance Name: BENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319178
Sub Alias Name: BENZOL
Substance Alias ID: 319179
Sub Alias Name: COAL NAPTHA
Substance Alias ID: 319180
Sub Alias Name: CYCLOHEXATRIENE
Substance Alias ID: 319181
Sub Alias Name: PHENE
Substance Alias ID: 319182
Sub Alias Name: PYROBENZOL
Sampling Result ID: 340393
Feature Id: Not reported
Hazard Release Id: 381945
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 06/01/1997
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 7.3 ppb (MCL)
Last Update By: jmw
Update Date: 05/05/1999
Decode for MediumID: Groundwater

Substance ID.: 122002
Haz Release ID: 381974
Qty Released: Not reported
Date Released: Not reported
Update Date: 05/05/1999
Update By: Not reported
Substance Code: ECD243
Substance Name: POLYAROMATIC HYDROCARBONS (PAH)
Substance Abbrev.: Not reported
Substance Alias ID: 318143
Sub Alias Name: PAH
Substance Alias ID: 318148
Sub Alias Name: POLYCYCLIC AROMATIC HYDROCARBONS (PAH)

AIRCRAFT SERVICE INTERNATIONAL, TAXIWAY F AREA (Continued) **1006853450**

Substance Alias ID: 318149
Sub Alias Name: POLYNUCLEAR AROMATIC HYDROCARBINS (PNA)
Substance Alias ID: 318150
Sub Alias Name: PNA
Sampling Result ID: 340440
Feature Id: Not reported
Hazard Release Id: 381974
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 06/01/1997
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: > MCL
Last Update By: jmw
Update Date: 05/05/1999
Decode for MediumID: Groundwater

Narrative:
NARR ID: 5737799
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: Spill file 97-1630

NARR ID: 5737800
NARR Code: Site Ownership
Created By: Not reported
Created Date: 12/17/2002
Updated By: KTHIESS
Updated Date: 10/01/2015
Decode for NarcdID: Site Ownership
NARR Comments: ASII is an operator on Port of Portland property. ASIG Aircraft Service International Group

NARR ID: 5755824
NARR Code: 1922
Created By: KTHIESS
Created Date: 10/01/2015
Updated By: KTHIESS
Updated Date: 10/01/2015
Decode for NarcdID: Current Site Summary Statement
NARR Comments: Taxiway F is now referred to as the South Cargo Reload Rack, ECSI 5849 Not reported

Administrative Action:
Action ID: 9506
Region: Northwestern Region
Complete Date: 03/18/1999
Rank Value: Not reported

AIRCRAFT SERVICE INTERNATIONAL, TAXIWAY F AREA (Continued) **1006853450**

Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: Medium
Comments: Not reported

Action ID: 9438
Region: Northwestern Region
Complete Date: 10/29/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 05/05/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 08/05/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Northwestern Region
Complete Date: 08/11/1998
Rank Value: 0
Cleanup Flag: False

AIRCRAFT SERVICE INTERNATIONAL, TAXIWAY F AREA (Continued) **1006853450**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 03/18/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

CRL:
Facility ID: 2240
Location ID: 40693
Status Code: LIS
Facility Status: Site Investigation recommended (SI)
Lat/Long: 45.5833 / -122.6138

Q99
WSW
1/2-1
0.766 mi.
4042 ft.

OLYMPIC FOUNDRY INC. **OR ECSI S104060590**
6530 NE 42ND AVE. **OR UIC N/A**
PORTLAND, OR 97218

Site 2 of 2 in cluster Q

Relative: Higher

Actual: 84 ft.

ECSI:
State ID Number: 4154
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 83291
Further Action: 0
Lat/Long (dms): 45 34 13.10 / -122 36 57.60
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: BC
Tax Lots: 3500, 3700
Size: 0.23 acre

OLYMPIC FOUNDRY INC. (Continued) **S104060590**

NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 04/20/2006
Created Date: 05/26/2004
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported

Narrative:
NARR ID: 5745261
NARR Code: Contamination
Created By: CHARMAN
Created Date: 07/29/2004
Updated By: CHARMAN
Updated Date: 07/29/2004
Decode for NarcdID: Contamination
NARR Comments: One of several sites suspected of being a contributing source of high levels of chromium in the Buffalo Slough water body, which is part of the Columbia Slough. Site was discovered as part of Columbia Slough Area-wide Site Discovery project.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 05/26/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/26/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 05/26/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/26/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

OR UIC:
UIC Well #: 1
Type: 5D2
Type Description: Storm Water Drainage
Status: Active

OLYMPIC FOUNDRY INC. (Continued) **S104060590**

UIC Number: 13393
Facility Status: Not Registered
Lat/Long: 45.570099 / -122.6156

UIC Well #: 2
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 13393
Facility Status: Not Registered
Lat/Long: 45.570099 / -122.6156

100
WSW
1/2-1
0.808 mi.
4266 ft.

Relative:
Higher

Actual:
60 ft.

HALTON COMPANY THE
4421 NE COLUMBIA BLVD
PORTLAND, OR 97218

OR ECSI **1000417393**
OR LUST **ORD007908692**
OR UST
OR AST
OR INST CONTROL
OR VCP
RCRA NonGen / NLR
FINDS
ECHO
OR HSIS
OR NPDES
OR UIC

ECSI:
State ID Number: 121
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: No Further Action
FACA ID: 1313
Further Action: 0
Lat/Long (dms): 45 34 25.00 / -122 37 4.10
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 18
Qtr Section: BC
Tax Lots: 200, 2400, 4900, 5200 & 200(B)
Size: 32.42 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 06/15/2017
Created Date: 08/03/1988
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Not reported
Alias Name: Halton Tractor Co.

HALTON COMPANY THE (Continued) **1000417393**

Hazardous Release:
Substance ID.: 121994
Haz Release ID: 382812
Qty Released: Unknown
Date Released: Historic and on May 13, 14, and 18, 1998.
Update Date: 11/06/1998
Update By: Not reported
Substance Code: ECD222
Substance Name: PETROLEUM
Substance Abbrev.: Not reported
Substance Category ID: 8533
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8533
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 340047
Feature Id: Not reported
Hazard Release Id: 382812
Medium: 704
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: True
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: 05/13/1998
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Unknown concentration; sheen and sludge
Last Update By: sxf
Update Date: 06/11/1998
Decode for MediumID: Surface Water
Sampling Result ID: 346989
Feature Id: Not reported
Hazard Release Id: 382812
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Unknown (observation)
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

HALTON COMPANY THE (Continued) **1000417393**

Narrative:

NARR ID: 5730214
NARR Code: Site Contacts
Created By: Not reported
Created Date: 12/17/2002
Updated By: EMCDONN
Updated Date: 11/01/2011
Decode for NarcdID: Site Contacts
NARR Comments: Mark Fahey, Halton Company VP. 15171 SW Bangy Road, Lake Owsego, OR 97035. mark.fahey@haltonco.com. 503.208.1573 Boni Halton, Halton Company. 15171 SW Bangy Road, Lake Owsego, OR 97035. bonihalton@msn.com Former Contact (no longer with Halton Company): Chuck Harrison, Halton Company Environmental & Facilities Manager. (503) 288-6411 / (503) 280-1540 / (503) 249-3358. Fax (503) 280-1848.

NARR ID: 5730215
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: EMCDONN
Updated Date: 04/23/2014
Decode for NarcdID: Contamination
NARR Comments: (6/26/96 GMW) In 1974, a DEQ WQ inspector discovered oil contamination along a drainage ditch running into Columbia Slough, which had resulted from Halton's uncontrolled pressure-washing of heavy equipment. Beginning in 1975, Halton's wastewater discharges occurred under an NPDES permit, limiting oil & grease and sediment effluent into the Slough. Twenty years later, the company is still having problems meeting discharge limits specified in its NPDES permit. The company removed 14 USTs [fuel, oil, waste oil] between 1991 and 1994, with some of the petroleum-contaminated soils excavated from tank pits being bioremediated and landfilled on-site, according to a Solid Waste Letter of Authorization Permit. Sediment collected from the wastewater-treatment system is also managed in this manner, under the NPDES permit. A 1990 inspection found that Halton had been discharging waste antifreeze into floor drains that led to exterior dry wells; although the company stopped this practice after the inspection, metals and other contaminants may have migrated into the subsurface via the dry wells. (6/10/98 SMF) DEQ SAS followed up two complaints alleging petroleum and asbestos contaminated soils stockpiled on-site (April 1998). Halton Company indicated that stained soils from area of former machine shop were combined with soils designated for use as on-site construction backfill material. On May 13-14, 1998, toxicologists for DEQ and E&E observed extensive sheen and petroleum sludge on Whitaker Slough originating from Halton Company storm drains. DEQ follow-up inspection on May 18 indicated sheens at facility's upstream and downstream stormwater outfalls, uncovered stockpile of contaminated soil on northern half of site, and petroleum sheens on puddled rainwater on site. Whitaker Slough sediment data from 1994 indicates elevated concentrations of molybdenum, 1,4-dichlorobenzene, PCE, chlorobenzene, diethyl phthalate, and Aroclor (PCB) 1254 at Halton site - contaminants that are apparently distinct from those detected at the adjacent upstream Nu-Way Oil site. (04.23.14 EKM) The Halton Company entered the DEQ voluntary cleanup program in June 2011 and a Consent Judgment with DEQ in 2012 to resolve in-water contamination related to the Columbia Slough. Halton Co. intends to investigate environmental contamination

HALTON COMPANY THE (Continued) **1000417393**

at their Main Campus and East Campus properties, and conduct a source control evaluation. DEQ approved a stormwater source control evaluation work plan for the Halton Properties in April 2013. Conducting stormwater sampling initiated spring 2013. DEQ approved a Remedial Investigation Work Plan in April 2014.

NARR ID: 5730216
NARR Code: Disposals
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Disposals
NARR Comments: Contaminated soils from LUST cleanups were self-remediated on a concrete pad on the northern half of the site, then landfilled on-site. Contaminated sludges from the site's oil/water separators have also been stored on this pad before being sent to the Marion County soil burner. Stained soils that were evidently encountered at a former on-site machine shop were combined with soils stockpiled for use as construction backfill material.

NARR ID: 5730217
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: Source files located in DEQ's NW Region office: Water Quality, Hazardous Waste, LUST (log #26-92-050). These contain inspection reports; correspondence to/from owner/operator; monitoring data; and lab reports. ECSI file contains SAS complaint follow-up and site visit information.

NARR ID: 5730218
NARR Code: General Site Description
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: General Site Description
NARR Comments: An industrial facility on a 25.6-acre site along Whitaker Slough. The southern half of the site is paved and has 7 to 9 operating buildings. Two additional buildings are evidently being planned. The northern half of the site is unpaved sand/gravel, and has been used for open storage of equipment. Rainfall runoff from the southern half of the site is directed to Whitaker Slough. There are no obvious runoff controls on the northern half of the site. Much of the rainfall probably percolates to shallow groundwater on the northern half of the site.

NARR ID: 5730219
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002

HALTON COMPANY THE (Continued) **1000417393**

Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Oil & grease; likely metals, VOCs, and PAHs.

NARR ID: 5730220
NARR Code: Land Use (Current/Reasonably Likely)
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Land Use (Current/Reasonably Likely)
NARR Comments: Site is currently zoned for industrial use, and may remain so for forseeable future. Properties north of NE Lombard/Portland Hwy (400 feet to the south of the site) are predominantly industrial, while those to the south are mainly residential. There appear to be five residential properties within 100 meters of the site: one along NE 42nd, and four along NE Buffalo St., just across Whitaker Slough.

NARR ID: 5730417
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Location
NARR Comments: Facility operates on property bounded by NE Columbia Blvd. on the south, and Whitaker Slough on the north. NE 46th Ave. is located to the east, and NE 42nd Ave. to the west.

NARR ID: 5730558
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Oil-contaminated wastewater discharged to drainage ditches leading to Slough; disposal of waste antifreeze to dry wells; possible disposal of other contaminants to these dry wells. Contaminated soils stockpiled on-site have not been covered, and runoff has not been contained. Stormwater is discharged to Whitaker Slough (under NPDES Permit). Floor drains in several operating buildings are tied to the stormwater drainage system. Stained soils that the Halton Company observed at old machine shop may be associated with past operations. Site historically collected wastewaters in an on-site lagoon.

NARR ID: 5730559
NARR Code: Media Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Media Contamination
NARR Comments: Suspected and/or documented soil, groundwater, surface water, slough sediment contamination.

NARR ID: 5730560
NARR Code: Site Ownership

HALTON COMPANY THE (Continued) **1000417393**

Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Ownership
NARR Comments: Halton Company (which operates with the assumed business name Halton Tractor) was formed on August 12, 1958, and has been on-site since about 1959; Halton Company is the current property owner. E.H. Halton, Jr., is the company president.

NARR ID: 5730561
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: The site has had historical impacts on the Columbia Slough, and may continue to threaten the Slough's water quality. This is the principal pathway of concern at the site. Several very shallow domestic wells are located 0.7 to 0.8 miles to the west. It is unclear if any subsurface contamination at the site could reach these wells. Site groundwater should be very shallow - 7 to 12 feet bgs.

NARR ID: 5730562
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: EMCDONN
Updated Date: 04/23/2014
Decode for NarcdID: Remedial Action
NARR Comments: (7/5/96 GMW) DEQ's Water Quality Division is continuing to oversee Halton's compliance with its NPDES permit, which specifies limits on oil & grease, TSS, and pH of wastewater entering the Slough. This permit also covers the on-site remediation and disposal of sediment removed from the wastewater treatment system. The UST Section has issued a no further action letter (2/96) for issues related to the removal of 14 USTs, including a small pocket-in-place under the shop building. A January 1994 hazardous waste inspection found the facility to be generally in compliance with RCRA. Therefore, there appear to be three issues needing further evaluation: 1) residual contaminants in the drainage ditches, around the contaminated soil stockpile area, and in stormwater drains; 2) petroleum/PAH and solvents contamination in Slough sediments; and 3) metals and other contaminants in on-site dry wells. Previously, Site Assessment recommended investigation of these areas, under a low-to-medium priority. (10/16/96 LSK) Based on current Columbia Slough considerations, Site Assessment recommends a medium priority for further investigation; sampling recommended above should be conducted to confirm release and any historical deposition or current threat to Slough; coordinate further with WQ. (6/10/98 SMF) Based on petroleum releases to Slough observed May 13, 14, and 18, 1998, and observed lack of containment for runoff from on-site contaminated soils stockpile, the site is now considered a high priority for an XPA, and is proposed for addition to CRL. (04.23.14 EKM) The Halton Company entered the DEQ voluntary cleanup program in June 2011 and a Consent Judgment with DEQ in 2012 to resolve in-water contamination related

HALTON COMPANY THE (Continued) **1000417393**

to the Columbia Slough. Halton Co. intends to investigate environmental contamination at their Main Campus and East Campus properties, and conduct a source control evaluation. DEQ approved a stormwater source control evaluation work plan for the Halton Properties in April 2013. Conducting stormwater sampling initiated spring 2013. DEQ approved a Remedial Investigation Work Plan in April 2014.

NARR ID: 5730563
NARR Code: Substances of Concern
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Substances of Concern
NARR Comments: Petroleum (PAHs, BTEX), toxic metals, and possible chlorinated solvents (aliphatic and aromatic), PCBs.

NARR ID: 5730564
NARR Code: Containment Units
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Containment Units
NARR Comments: Contaminated soils/sediments from the facility's oil/water separators are stockpiled on a barricaded concrete pad for self-remediation, and as interim storage prior to shipping to Marion County soil burner. Soils in this area have not been covered, and runoff is uncontrolled.

NARR ID: 5730565
NARR Code: Water Use (Current/Reasonably Likely)
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Water Use (Current/Reasonably Likely)
NARR Comments: Site should have very shallow groundwater (7-12 feet bgs), based on water levels at neighboring Nu-Way Oil. Site groundwater probably drains to Whitaker Slough, although several very shallow domestic wells are located 0.7 to 0.8 miles to the west.

NARR ID: 5753677
NARR Code: 1922
Created By: EMCDONN
Created Date: 11/01/2011
Updated By: GWISTAR
Updated Date: 06/21/2017
Decode for NarcdID: Current Site Summary Statement
NARR Comments: [June 2017] DEQ has determined no No Further Action is required for Halton Co. site (ECSI #121) and Halton Voith site (ECSI #1503) subject to certain conditions. The Halton Co. completed a remedial investigation and source control evaluation, under a Voluntary Cleanup Agreement with DEQ. In 2012, the Halton Co. also entered into a settlement with DEQ to resolve liability for contribution to contamination of Whitaker Slough and Ponds from the properties. The source control evaluation performed included stormwater monitoring

HALTON COMPANY THE (Continued) **1000417393**

and site improvements to remove and control contaminant sources. The evaluation and actions, in addition to payment into DEQ s settlement account, fulfill requirements of the 2012 settlement.

 At the Halton Company site, potential risks associated with hazardous substances (contaminants) in soil and groundwater above risk-based levels will be managed through institutional controls. Institutional controls include preserving surface covers, implementing a contaminated media management plan during subsurface work, ongoing stormwater controls, and restrictions on groundwater use. The DEQ Staff Memorandum in support of a Conditional No Further Action determination presents the basis in greater detail for DEQ s recommended CNFA and can be downloaded from this website (see below), in addition to other site documents.

Site Control:
Site Control #: 1116
Control Number: 3
Begin Date: 06/14/2017
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: E. McDonnell, DEQ
Last Reviewed Date: Not reported
Last Update By: GWISTAR
Last Updated Date: 06/15/2017
Site Comment: DEQ s conditional NFA requires institutional controls to ensure continued protection of occupational workers and ongoing stormwater management controls. Required institutional controls include: a) implementation of the Contaminated Materials Management Plan; b) maintenance of caps and covers; c) restriction on groundwater use; and d) long-term stormwater management for continued source control. These control requirements have been incorporated into an Easement and Equitable Servitude (EES) for the Halton Co. site and recorded with the property deed. See also ECSI #1503.

Administrative Action:
Action ID: 9519
Region: Northwestern Region
Complete Date: 05/05/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/26/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9440
Region: Northwestern Region
Complete Date: 06/23/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/05/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action

HALTON COMPANY THE (Continued) **1000417393**

Action Code Flag: False
Action: Letter Agreement
Further Action: 0
Comments: Not reported

Action ID: 9520
Region: Northwestern Region
Complete Date: 08/30/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 11/01/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: EXPANDED PRELIMINARY ASSESSMENT
Further Action: 0
Comments: Not reported

Action ID: 9502
Region: 0
Complete Date: 04/28/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/13/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation recommended (RI)
Further Action: High-Medium
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 04/28/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/13/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9524
Region: Northwestern Region
Complete Date: 04/28/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/28/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False

HALTON COMPANY THE (Continued) **1000417393**

Action: SCE
Further Action: 0
Comments: Not reported

Action ID: 9490
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/28/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Long Term Care/Control recommended (OM)
Further Action: 0
Comments: Not reported

Action ID: 9411
Region: Northwestern Region
Complete Date: 06/15/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/15/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: No Further Action (Conditional)
Further Action: 0
Comments: Not reported

Action ID: 9524
Region: 0
Complete Date: 04/28/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/18/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: SCE
Further Action: 0
Comments: Not reported

Action ID: 9517
Region: Northwestern Region
Complete Date: 01/10/2003
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SRS Waiting List

HALTON COMPANY THE (Continued) **1000417393**

Further Action: 0
Comments: Not reported

Action ID: 9449
Region: Northwestern Region
Complete Date: 04/10/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: Not reported
Comments: Not reported

Action ID: 9431
Region: Northwestern Region
Complete Date: 04/10/2000
Rank Value: 85
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Place on hold
Further Action: Not reported
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 06/10/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9510
Region: Northwestern Region
Complete Date: 04/10/2000
Rank Value: 85
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Expanded Preliminary Assessment recommended (XPA)
Further Action: High

HALTON COMPANY THE (Continued) **1000417393**

Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 06/10/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 07/24/1998
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: 0
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 07/05/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9505
Region: Northwestern Region
Complete Date: 10/16/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Confirmatory Sampling recommended
Further Action: Medium
Comments: Not reported

HALTON COMPANY THE (Continued) **1000417393**

Action ID: 9425
Region: Northwestern Region
Complete Date: 07/05/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9449
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Headquarters
Complete Date: 02/12/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: Not reported
Comments: Not reported

Action ID: 9442

HALTON COMPANY THE (Continued) **1000417393**

Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/01/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 131525
Operation Status: Active
Common Name: The Halton Co.
Yrs of Operation: 1959 to present
Comments: Heavy equipment maintenance and repair
Updated Date: 06/21/1996
Updated By: gmw
Decode for OpstatID: Active
Operations SIC Id: 195593
SIC Code: 7699
Created By: Not reported
Created Date: 12/17/2002
Operations SIC Id: 196326
SIC Code: 5082
Created By: Not reported
Created Date: 12/17/2002

LUST:
Region: North Western Region
Facility ID: 26-92-0050
Cleanup Received Date: 02/21/1992
Cleanup Start Date: 02/21/1992
Cleanup Complete Date: 11/27/1995
Decode for Region: North West Region

UST:
Facility ID: 1672
Facility Telephone: (503)288-6411
Permittee Name: LYLE BOWER, PURCHASING MANAGER
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 16
Number of Tanks: 16

AST:
Facility Id: 118121
Hazardous Substance: MOTOR OIL
Reporting Quantities: 10,000-49,999
Quantity Units: GALLONS
Physical State: LIQUID
Storage 1: STEEL DRUM
Storage 2: ABOVEGROUND TANK

HALTON COMPANY THE (Continued) **1000417393**

County:	Not reported
Owner-Operator Name:	Not reported
Direct Site Phone:	Not reported
Report Class:	Not reported
Report Year:	Not reported
Is Poisonous Gas:	Not reported
Is Poisonous Material:	Not reported
Is Biological Hazard:	Not reported
Is Radioactive Material:	Not reported
Is Explosive:	Not reported
Status:	Inactive

Facility Id:	118121
Hazardous Substance:	DIESEL FUEL
Reporting Quantities:	10,000-49,999
Quantity Units:	GALLONS
Physical State:	LIQUID
Storage 1:	ABOVEGROUND TANK
County:	Not reported
Owner-Operator Name:	Not reported
Direct Site Phone:	Not reported
Report Class:	Not reported
Report Year:	Not reported
Is Poisonous Gas:	Not reported
Is Poisonous Material:	Not reported
Is Biological Hazard:	Not reported
Is Radioactive Material:	Not reported
Is Explosive:	Not reported
Status:	Inactive

Facility Id:	118121
Hazardous Substance:	WASTE OIL
Reporting Quantities:	5,000-9,999
Quantity Units:	GALLONS
Physical State:	LIQUID
Storage 1:	ABOVEGROUND TANK
Storage 2:	STEEL DRUM
County:	Not reported
Owner-Operator Name:	Not reported
Direct Site Phone:	Not reported
Report Class:	Not reported
Report Year:	Not reported
Is Poisonous Gas:	Not reported
Is Poisonous Material:	Not reported
Is Biological Hazard:	Not reported
Is Radioactive Material:	Not reported
Is Explosive:	Not reported
Status:	Inactive

Facility Id:	118121
Hazardous Substance:	WASTE ANTIFREEZE
Reporting Quantities:	1,000-4,999
Quantity Units:	GALLONS
Physical State:	LIQUID
Storage 1:	ABOVEGROUND TANK
County:	Not reported
Owner-Operator Name:	Not reported

HALTON COMPANY THE (Continued) **1000417393**

Direct Site Phone: Not reported
Report Class: Not reported
Report Year: Not reported
Is Poisonous Gas: Not reported
Is Poisonous Material: Not reported
Is Biological Hazard: Not reported
Is Radioactive Material: Not reported
Is Explosive: Not reported
Status: Inactive

Facility Id: 118121
Hazardous Substance: PROPANE
Reporting Quantities: 1,000-4,999
Quantity Units: GALLONS
Physical State: GAS
Storage 1: ABOVEGROUND TANK
Storage 2: CYLINDER
County: Not reported
Owner-Operator Name: Not reported
Direct Site Phone: Not reported
Report Class: Not reported
Report Year: Not reported
Is Poisonous Gas: Not reported
Is Poisonous Material: Not reported
Is Biological Hazard: Not reported
Is Radioactive Material: Not reported
Is Explosive: Not reported
Status: Inactive

Facility Id: 118121
Hazardous Substance: HYDRAULIC OIL
Reporting Quantities: 1,000-4,999
Quantity Units: GALLONS
Physical State: LIQUID
Storage 1: ABOVEGROUND TANK
Storage 2: STEEL DRUM
County: Not reported
Owner-Operator Name: Not reported
Direct Site Phone: Not reported
Report Class: Not reported
Report Year: Not reported
Is Poisonous Gas: Not reported
Is Poisonous Material: Not reported
Is Biological Hazard: Not reported
Is Radioactive Material: Not reported
Is Explosive: Not reported
Status: Inactive

Facility Id: 118121
Hazardous Substance: GASOLINE
Reporting Quantities: 5,000-9,999
Quantity Units: GALLONS
Physical State: LIQUID
Storage 1: ABOVEGROUND TANK
County: Not reported
Owner-Operator Name: Not reported
Direct Site Phone: Not reported

HALTON COMPANY THE (Continued) **1000417393**

Report Class:	Not reported
Report Year:	Not reported
Is Poisonous Gas:	Not reported
Is Poisonous Material:	Not reported
Is Biological Hazard:	Not reported
Is Radioactive Material:	Not reported
Is Explosive:	Not reported
Status:	Inactive

Facility Id:	118121
Hazardous Substance:	TRANSMISSION OIL
Reporting Quantities:	5,000-9,999
Quantity Units:	GALLONS
Physical State:	LIQUID
Storage 1:	ABOVEGROUND TANK
Storage 2:	STEEL DRUM
County:	Not reported
Owner-Operator Name:	Not reported
Direct Site Phone:	Not reported
Report Class:	Not reported
Report Year:	Not reported
Is Poisonous Gas:	Not reported
Is Poisonous Material:	Not reported
Is Biological Hazard:	Not reported
Is Radioactive Material:	Not reported
Is Explosive:	Not reported
Status:	Inactive

Institutional Control:

Site Control Sequence #:	1116
Site Id:	121
Control Sequence #:	3
Begin Date:	06/14/2017
End Date:	Not reported
Frequency Of Review:	60
Last Reviewed By:	E. McDonnell, DEQ
Last Review Date:	Not reported
Last Updated By:	GWISTAR
Last Updated Date:	06/15/2017
Group Sequence #:	2
Control Code:	EES
Control Description:	Easement Equitable Servitude
FK Type Code:	1
Group Code:	PR
Group Description:	Proprietary
Type Code:	I
Type Description:	Institutional
Comments:	DEQ s conditional NFA requires institutional controls to ensure continued protection of occupational workers and ongoing stormwater management controls. Required institutional controls include: a) implementation of the Contaminated Materials Management Plan; b) maintenance of caps and covers; c) restriction on groundwater use; and d) long-term stormwater management for continued source control. These control requirements have been incorporated into an Easement and Equitable Servitude (EES) for the Halton Co. site and recorded with the property deed. See also ECSI #1503.

HALTON COMPANY THE (Continued) **1000417393**

VCS:
ECS Site ID: 121
Facility Size: 32.42 acres
Action: No Further Action (Conditional)
Start Date: 06/15/2017
End Date: 06/15/2017
Facility Status: Completed
Program: VCP
Latitude: 45.5736
Longitude: -122.6178

RCRA NonGen / NLR:
Date form received by agency: 07/02/2010
Facility name: HALTON COMPANY THE
Facility address: 4421 NE COLUMBIA BLVD
PORTLAND, OR 97218
EPA ID: ORD007908692
Mailing address: PO BOX 3377
PORTLAND, OR 97208
Contact: CHUCK HARRISON
Contact address: PO BOX 3377
PORTLAND, OR 97208
Contact country: US
Contact telephone: 503-288-6411
Contact email: Not reported
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: THE HALTON COMPANY
Owner/operator address: PO BOX 3377
PORTLAND, OR 97208
Owner/operator country: US
Owner/operator telephone: 503-288-6411
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 07/02/2010
Owner/Op end date: Not reported

Owner/operator name: THE HALTON COMPANY
Owner/operator address: PO BOX 3377
PORTLAND, OR 97208
Owner/operator country: US
Owner/operator telephone: 503-288-6411
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 07/02/2010
Owner/Op end date: Not reported

HALTON COMPANY THE (Continued) **1000417393**

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: NA
. Waste name: NA

Historical Generators:
Date form received by agency: 12/31/2003
Site name: HALTON COMPANY THE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/02/2003
Site name: HALTON COMPANY THE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/07/2002
Site name: HALTON COMPANY THE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/10/2001
Site name: HALTON COMPANY THE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/18/2000
Site name: HALTON COMPANY THE
Classification: Small Quantity Generator

Date form received by agency: 01/22/1999
Site name: HALTON COMPANY THE
Classification: Small Quantity Generator

Date form received by agency: 02/25/1998
Site name: HALTON COMPANY THE
Classification: Small Quantity Generator

Date form received by agency: 02/19/1997
Site name: HALTON COMPANY THE
Classification: Small Quantity Generator

Date form received by agency: 02/20/1996
Site name: HALTON COMPANY THE
Classification: Small Quantity Generator

HALTON COMPANY THE (Continued) **1000417393**

Date form received by agency: 02/28/1995
Site name: HALTON COMPANY THE
Classification: Small Quantity Generator

Date form received by agency: 03/01/1994
Site name: HALTON COMPANY THE
Classification: Large Quantity Generator

Date form received by agency: 03/01/1994
Site name: HALTON COMPANY THE
Classification: Large Quantity Generator

Date form received by agency: 03/01/1993
Site name: HALTON COMPANY THE
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF

HALTON COMPANY THE (Continued) **1000417393**

ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 03/02/1992
Site name: HALTON COMPANY THE
Classification: Large Quantity Generator

Date form received by agency: 03/01/1992
Site name: HALTON COMPANY THE
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: FR - 40 CFR 279.22(c)
Area of violation: Generators - General
Date violation determined: 05/18/1999
Date achieved compliance: 06/30/1999
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 05/26/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 01/19/1994
Date achieved compliance: 04/17/1994
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/01/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Container Use and Management
Date violation determined: 01/19/1994
Date achieved compliance: 04/01/1994
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/01/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:

HALTON COMPANY THE (Continued) **1000417393**

Evaluation date: 05/18/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 06/30/1999
Evaluation lead agency: State

Evaluation date: 01/19/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Container Use and Management
Date achieved compliance: 04/01/1994
Evaluation lead agency: State

Evaluation date: 01/19/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 04/17/1994
Evaluation lead agency: State

FINDS:

Registry ID: 110004778161

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid: 1000417393
Registry ID: 110004778161
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110004778161

HSIS:

Facility ID: 118121
Department Or Division Of Company: Not reported
Extremely Hazardous Substance: Y
Facility Has Written Emergency Plan: Y
Contains 112R: N
NAICS Code 1: 423830
NAICS Desc 1: IND MACHINERY & EQP WHSLE
NAICS Code 2: 000000
NAICS Desc 2: Not reported
Manager Name: JEFF GOGGIN

HALTON COMPANY THE (Continued) **1000417393**

Business Phone:	5034881204
Mailing Address:	4421 NE COLUMBIA BLVD
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	180
Day Phone:	5034756412
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	ROBIN PLANCE
Emergency Procedure:	SAFETY OFFICE
Business Type:	HEAVY EQUIPMENT SALES & SERVICE
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	GASOLINE
Physical Description:	LIQUID
Case Number:	8006619
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1203
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	GASOLINE
United Nations/north America 4 Digit Class Number:	1203
Chemical Abstract Service Identifier Number:	8006619
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Y
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	GLASS AND MIRROR CLEANER
Physical Description:	LIQUID
Case Number:	67630
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	11

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ISOPROPYL ALCOHOL
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	GLASS AND MIRROR CLEANER
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	67630
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	GREASE
Physical Description:	SOLID
Case Number:	64742525
Facility Id:	118121
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	30

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	D
Description:	STEEL DRUM
Type Code:	M
Temperature Description:	GLASS BOTTLE, JUG, BUCKET
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SEVERELY REFINED PETROLEUM DISTILLATE
United Nations/north America 4 Digit Class Number:	1268
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	GREASE
United Nations/north America 4 Digit Class Number:	1268
Chemical Abstract Service Identifier Number:	64742525
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	HYDRAULIC OIL
Physical Description:	LIQUID
Case Number:	64742547
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1270
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	HYDRAULIC OIL
United Nations/north America 4 Digit Class Number:	1270
Chemical Abstract Service Identifier Number:	64742547
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ISOPAR L
Physical Description:	LIQUID
Case Number:	64742489
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	11

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	SYNTHETIC ISOPARAFFINIC HYDROCARBON
United Nations/north America 4 Digit Class Number:	1268
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ISOPAR L
United Nations/north America 4 Digit Class Number:	1268
Chemical Abstract Service Identifier Number:	64742489
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	LEAD ACID BATTERIES-DRY
Physical Description:	SOLID
Case Number:	7439921
Facility Id:	118121
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	10
Max Amt Possessed During Year CD:	20

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	LEAD
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	4
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	LEAD ACID BATTERIES-DRY
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	7439921
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	MOTOR OIL
Physical Description:	LIQUID
Case Number:	64742547
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	30

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	A
Temperature Description:	ABOVEGROUND TANK
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	MOTOR OIL
United Nations/north America 4 Digit Class Number:	0000
Chemical Abstract Service Identifier Number:	64742547
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	N
Pesticide:	N
Contains 313:	Not reported

Chemical Name:	NITROGEN
Physical Description:	GAS
Case Number:	7727379
Facility Id:	118121
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Chemical Abstract Service Identifier Number:	7727379
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	118121
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN LIQUID
Physical Description:	GAS
Case Number:	7782447
Facility Id:	118121
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	S
Description:	DEWAR
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	CRYOGENIC CONDITIONS
Temperature of The Hazardous Substance Code:	7
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1073
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Oxidizers
Third Hazardous Class Code For Chemical:	Acute Health Hazard
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	5.1
Hazard Class 3 Of The Chemical:	6.3

Chemical:

Chemical Name:	OXYGEN LIQUID
United Nations/north America 4 Digit Class Number:	1073
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Oxidizers
Third Hazardous Class Code For Chemical:	Acute Health Hazard
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	5.1
Hazard Class 3 Of The Chemical:	6.3
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	PAINT OIL BASE/TOLUENE
Physical Description:	LIQUID
Case Number:	108883
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	F
Description:	CAN
Type Code:	M
Temperature Description:	GLASS BOTTLE, JUG, BUCKET
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	TOLUENE
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PAINT OIL BASE/TOLUENE
United Nations/north America 4 Digit Class Number:	1263
Chemical Abstract Service Identifier Number:	108883
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Y

Chemical Name:	PROPANE
Physical Description:	GAS
Case Number:	74986
Facility Id:	118121
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	L
Temperature Description:	CYLINDER
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Chemical Abstract Service Identifier Number:	74986
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ANTIFREEZE
Physical Description:	LIQUID
Case Number:	107211
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	N
Description:	PLASTIC BOTTLE, JUG, BUCKET
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ETHYLENE GLYCOL
United Nations/north America 4 Digit Class Number:	3082
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ANTIFREEZE
United Nations/north America 4 Digit Class Number:	3082
Chemical Abstract Service Identifier Number:	107211
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	SULFURIC ACID
Physical Description:	LIQUID
Case Number:	7664939
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	04

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	50-199
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	1830
Hazard Rank:	2
EHS Ingredient:	SULFURIC ACID
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Reactive Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.4
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	1830
Chemical Abstract Service Identifier Number:	7664939
Chemical Is Extremely Hazardous Substance (EHS):	Y
First Hazardous Class Code For Chemical:	Reactive Material
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.4
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	TRANSMISSION OIL
Physical Description:	LIQUID
Case Number:	64742650
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	TRANSMISSION OIL
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	64742650
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	ARGON
Physical Description:	GAS
Case Number:	7440371
Facility Id:	118121
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1006
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON
United Nations/north America 4 Digit Class Number:	1006
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ARGON/CARBON DIOXIDE MIXTURE
Physical Description:	GAS
Case Number:	7440371
Facility Id:	118121
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	21
Max Amt Possessed During Year CD:	21

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	ARGON
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON/CARBON DIOXIDE MIXTURE
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	7440371
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	WASTE ANTIFREEZE
Physical Description:	LIQUID
Case Number:	107211
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ETHYLENE GLYCOL
United Nations/north America 4 Digit Class Number:	3082
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE ANTIFREEZE
United Nations/north America 4 Digit Class Number:	3082
Chemical Abstract Service Identifier Number:	107211
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Y

Chemical Name:	WASTE LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	7664939
Facility Id:	118121
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	30

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	7664939
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Y
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Y

Chemical Name:	WASTE OIL
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	WASTE OIL
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	EVAPO KLEEN SOLVENT
Physical Description:	LIQUID
Case Number:	142825
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	C
Description:	TANK INSIDE BUILDING
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	HEPTANE
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	EVAPO KLEEN SOLVENT
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	142825
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	BRAKE CLEANER BC SERIES
Physical Description:	LIQUID
Case Number:	142825
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	20

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	F
Description:	CAN
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	HEPTANE
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	BRAKE CLEANER BC SERIES
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	142825
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	LIQUID NITROGEN
Physical Description:	GAS
Case Number:	Not reported
Facility Id:	118121
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	NITROGEN
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	LIQUID NITROGEN
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	118121
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	CARBON DIOXIDE
Physical Description:	GAS
Case Number:	124389
Facility Id:	118121
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1013
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1013
Chemical Abstract Service Identifier Number:	124389
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ARGON 1PPM 98%/CARBON DIOXIDE 2-99%
Physical Description:	GAS
Case Number:	0000124389
Facility Id:	118121
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	21
Max Amt Possessed During Year CD:	21

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1956
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ARGON 1PPM 98%/CARBON DIOXIDE 2-99%
United Nations/north America 4 Digit Class Number:	1956
Chemical Abstract Service Identifier Number:	0000124389
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	118121
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30

HALTON COMPANY THE (Continued) **1000417393**

Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	DIESEL FUEL
United Nations/north America 4 Digit Class Number:	1993
Chemical Abstract Service Identifier Number:	0068334305
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NPDES:

WQ File Nbr:	36350
Legal Name:	PETERSON MACHINERY CO.
Region:	Not reported
Pri SIC:	7353

HALTON COMPANY THE (Continued) **1000417393**

Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	NPDES-IW-N
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	36350
Legal Name:	PETERSON MACHINERY CO.
Region:	NWR
Pri SIC:	7353
Facility Type:	HEAVY CONSTRUCT. EQUIP. RENTAL
Latitude:	45.5736
Longitude:	-122.6178
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR116005
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	08/01/2017
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	956783
Class:	MINOR
Start Date:	03/28/2001
Region Decode:	North West Region

OR UIC:

UIC Well #:	2
Type:	5W31
Type Description:	Septic Systems (well Disposal Method)
Status:	Formal Closure
UIC Number:	10218
Facility Status:	Registered & RA
Lat/Long:	45.5718 / -122.6175

UIC Well #:	3
Type:	5W31

HALTON COMPANY THE (Continued) **1000417393**

Type Description: Septic Systems (well Disposal Method)
Status: Formal Closure
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 4
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Formal Closure
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 5
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Formal Closure
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 6
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Formal Closure
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 7
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Formal Closure
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 8
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 9
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 10
Type: 5D2
Type Description: Storm Water Drainage

HALTON COMPANY THE (Continued) **1000417393**

Status: Active
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 11
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 12
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 13
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Formal Closure
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

UIC Well #: 14
Type: 5W31
Type Description: Septic Systems (well Disposal Method)
Status: Formal Closure
UIC Number: 10218
Facility Status: Registered & RA
Lat/Long: 45.5718 / -122.6175

101
SE
1/2-1
0.877 mi.
4633 ft.

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) **OR ECSI** **S115330254**
NE 75TH AVE., BOUNDED BY NE 72ND TO W AND INDUSTRIAL LAND TO **OR BROWNFIELDS** **N/A**
PORTLAND, OR 97218

Relative:
Higher

Actual:
69 ft.

ECSI:
State ID Number: 2251
Brown ID: Brownfield Site - DEQ Funding Assistance
Study Area: False
Region ID: Not reported
Legislatve ID: 839
Investigation: No Further Action
FACA ID: 40703
Further Action: 0
Lat/Long (dms): 45 33 52.20 / -122 35 10.30
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

Range Coord: 2.00
Range Zone: E
Section Coord: 17
Qtr Section: DC
Tax Lots: 300
Size: 24 acres
NPL: False
Orphan: True
Updated By: MFRISTE
Update Date: 08/01/2018
Created Date: 09/02/1998
Decode For RegionID: Not reported
Decode For BrownID: Brownfield Site - DEQ Funding Assistance
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Other
Alias Name: Riedel Waste Disposal Systems Inc.
Alias Name: Thomas Cully Park
Alias Name: Portland Parks & Recreation

Narrative:
NARR ID: 5737839
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: RWELLS
Updated Date: 05/16/2014
Decode for NarcdID: Contamination
NARR Comments: (1/15/2001 TJS/SW) The Killingsworth Fast Disposal Landfill (KFD) occupies the site of the former Nash Pit gravel quarry in northeast Portland. KFD was owned and operated by Riedel Waste Disposal Systems. The landfill was franchised by Metro and permitted by DEQ as a Demolition Waste Disposal Site in the early 1980s. Although permitted as a Demolition Waste Disposal Site, Metro, with DEQ permission, diverted non-putrescible domestic solid waste from the St. Johns Landfill (ECSI #164) to KFD in the late 1980s, when St. Johns was approaching capacity. The KFD Landfill closed in 1990. It is lined along the bottom and sides, and is equipped with a leachate collection system. The final landfill cover (constructed of a geomembrane, compacted soil, and grass) was completed in 1991. A limited gas-control system, consisting of 35 methane gas extraction wells, was completed in September 1992. Riedel Waste Disposal Systems was subsequently dissolved, and its parent company declared bankruptcy in 1994. DEQ received $545,000 as part of the bankruptcy settlement in December 1995. It was not known if the soils imported to the site for use as a landfill cap were tested prior to being placed at the site. In addition, the methane collection system was installed to inhibit the ability of methane vapors to migrate off-site, however the effectiveness of the system was not assessed for a park user scenario. Therefore, the city of Portland requested brownfield assistance from DEQ to conduct additional sampling of the property to identify potential environmental concerns associated with the unknown contaminant content of the landfil soil cap, the effectiveness of the methane collection system, and the general outdoor air quality of the area.

NARR ID: 5737840
NARR Code: Data Sources

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

Created By: Not reported
Created Date: 12/17/2002
Updated By: RWELLS
Updated Date: 11/29/2016
Decode for NarcdID: Data Sources
NARR Comments: Solid Waste Disposal Site, Closure Permit 1204: Construction and Demolition Waste Landfill, City of Portland, Operator, KFD Landfill, 5558 NE 75th Avenue, Portland, OR. Oregon Department of Environmental Quality, Solid Waste Program, November 2000. Phase I Environmental Site Assessment, Cully Park Garden-KFD-BF, 0.68 Acre Portion of COP Property ID R317241, Portland, OR. Northwest Geotech, Inc., June, 2011. Results of Sampling and Analysis, Cully Community Garden, NE 75th and NE Killingsworth Street, Portland, OR. City of Portland, Bureau of Environmental Services, Coordinated Site Analysis Program, Special Waste Division, November, 2011. Phase I Environmental Site Assessment, Proposed Thomas Cully Park/Former KFD Landfill, 7500 NE Killingsworth Street, Portland, OR. GeoDesign Inc., December, 2011. Revised Site Assessment Field Activities Report, KFD Landfill/Cully Park Redevelopment. GeoEngineers, June, 2012. Health Consultation, Final Release, Cully Park Site, Portland, OR. Oregon Health Authority, April, 2013. Summary of Site Activities and Request for No Further Action Determination (NFA) Package to DEQ for ECSI Site 2251, Killingsworth Fast Disposal Landfill (KFD). City of Portland, Environmental Services, May, 2013. Supplemental Soil and Groundwater Characterization Report and Contaminated Media Management Plan, South Waterfront Block 43, 0601 SW Abernathy Street, Portland, OR. GeoDesign Inc., November, 2013. Review of Supplemental Soil and Groundwater Characterization Report and Contaminated Media Management Plan for South Waterfront- Block 43. Oregon DEQ, March, 2014. Addendum to the March 28, 2014 DEQ review letter for South Waterfront Block 43 excavation activities. Oregon DEQ, March, 2014. Block 43 Fill Soil for use in future Cully Park. Oregon Health Authority, July, 2014. Review of Eastmoreland-Woodstock Sewer Rehabilitation Project Memo for the Proposed Import of Fill Soil to Cully Park/KFD Landfill. OR DEQ, July, 2014. Block 43 Excavation and Soil Screening Results, South Waterfront Block 43. APEX, November 2014. Review of Taggart 9 Sewer Relief and Reconstruction Project Information for the Proposed Import of Fill Soil to Cully Park/KFD Landfill. Oregon DEQ, January, 2015. Soil from Eastmoreland-Woodstock Sewer Rehab project soil for use at Cully Park. Oregon Health Authority, January 2015. Preliminary Engineering Report, Thomas Cully Park, 7500 NE Killingsworth Street, Portland, OR. GeoDesign, Inc., February 2015. Soil Sampling Report, PDX Soil Stockpiles, Multnomah County Drainage District, Portland, OR. APEX, March 2, 2015.

NARR ID: 5753760
NARR Code: General Site Description
Created By: RWELLS
Created Date: 12/23/2011
Updated By: RWELLS
Updated Date: 11/29/2016
Decode for NarcdID: General Site Description
NARR Comments: In 2011-2012, DEQ's Cleanup Program used funds from the 128(a) EPA Brownfield grant to perform site sampling activities at the site. In coordination with the Cully neighborhood community, the City of Portland s Parks and Recreation Bureau developed a master plan to redevelop the landfill into Thomas Cully Park. Due to previous site

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

use, there were questions regarding the potential presence of contaminants in the landfill cap (surface soils) and outdoor air. Therefore, DEQ and the Oregon Health Authority (OHA) worked in collaboration with the Community Involvement Committee to develop a sampling plan with the objective of completing a Health Consultation to determine human health risk exposure to future park users and workers. The site sampling activity included the collection of outdoor air and soil samples. The site is a 24-acre closed landfill located in northeast Portland between NE 72nd and NE 77th Avenues and Columbia Boulevard. Previous use of the property included agricultural activity and a gravel quarry operation. In the early 1980 s Riedel Waste System (RWS) began operation of the Killingsworth Fast Disposal (KFD) landfill by accepting demolition waste under a DEQ permit. The landfill was permanently closed in 1990. Following closure, the owner installed a landfill gas collection system. Shortly thereafter, RWS informed DEQ that it was financially unable to perform post-closure maintenance and monitoring activities. RWS later abandoned the site and was eventually administratively dissolved by the Secretary of State for failure to pay annual license fees. By the mid-1990's, the landfill gas collection system had become unsafe and unreliable. High methane levels were reported throughout the landfill, threatening neighboring residences and businesses. Several subterranean fires occurred in the landfill, further damaging the existing gas collection system and the geomembrane cap. In 1995, DEQ began performing maintenance and monitoring to prevent further degradation of the property and to protect human health and the environment. By 1998, DEQ had determined that a new landfill gas collection system was necessary to prevent migration and possible explosion of methane in surrounding areas. In early 1999, DEQ determined that conditions at the property presented a substantial and imminent threat to human health. DEQ began performing actions at the property to mitigate threats to human health posed by methane that included: installation of new landfill gas extraction wells, piping, blowers and flare tower; grading and drainage improvements; and extensive repair of the geomembrane cap. These activities were completed in the fall of 2000, at a total cost of approximately $1,500,000. DEQ funded the activities primarily from the Solid Waste Orphan Site Account established under Oregon Revised Statutes (ORS) 465.381. DEQ did not accept ownership of the property. In 2000, Multnomah County took possession of the property through tax foreclosure. In 2002, DEQ and the City of Portland entered into an intergovernmental agreement that shifted operation and maintenance of the closed landfill from DEQ to the city. The ownership of the property was also transferred at no cost from Multnomah County to the city of Portland s Bureau of Parks and Recreation. Since that time, the city of Portland and Metro have entered into a separate agreement where Metro manages the site for the city of Portland. In 2010, sediment from the Laurelhurst pond dredging action was placed at the KFD landfill for capping material. Prior to removing the sediment from the pond, analysis of RCRA 8 metals, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), total petroleum hydrocarbons (TPH), E.coli, and total organic carbon was conducted. Sediment that was considered clean fill was transported to the KFD landfill. Sediment with PCB detections were capped in place at Laurelhurst Park. The primary environmental exposure concerns for potential future park users are contact with site surface soil and exposure to landfill gas. It was

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

not known if the soil imported to the site for use as a landfill cap, prior to the placement of the Laurelhurst pond dredge material, was tested prior to being placed at the site. In addition, the methane collection system was installed to inhibit the ability of methane vapors to migrate off-site, however the effectiveness of the system was not assessed for a park user exposure scenario. (7/29/2012 RWA) Sampling of surface soils and ambient air was conducted in April 2012. Soil samples were analyzed for asbestos, PCBS, herbicides, organochlorine pesticides, RCRA 8 metals, PAHs, dioxin, and TPH. All soil samples were below urban residential exposure RBCs for all contaminants of interest, indicating that the site was protective for future park workers and users. Ambient air data showed consistent levels of ethylbenzene and naphthalene with the Portland metro area. (5/16/14 RWA) As part of park development activities at the site, approximately 45,000 yd3 of soil is planned for excavation from a property at South Waterfront (Block 43) and relocation and spreading at Cully Park. DEQ and the Oregon Health Authority have reviewed data reports associated with soil and groundwater sampling at Block 43 and have determined that soil from Block 43 is safe for relocation and reuse at Cully Park, provided that appropriate screening protocols be followed that are associated with the November, 2013 Contaminated Media Management Plan, Field Procedures Memo, and March 2014 DEQ letters (these documents are included as Web Docs). Additional soil from the Woodstock/Eastmoreland sewer rehabilitation project is being imported to Cully Park for use as cover. Laboratory analysis of soil borings collected from the sewer rehabilitation project area showed that the soil is suitable for import to Cully Park (soil meets applicable screenign levels considered safe for use at the Park). DEQ issued a No Further Action letter in December, 2015. Park completion is scheduled for 2017. Soil (stockpiles 'B' and 'C') from the Multnomah County Drainage District stockpiles at Portland International Airport will be imported to Cully Park to meet final grading requirements. Lab analysis and DEQ and Oregon Health Authority evaluation determined the soil to be protective of park users. DEQ and OHA met with members of the Community Involvement Committee to discuss the site-specific park user risk-based concentration that was developed for evaluation of the soil in November, 2016.

NARR ID: 5737841
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: RWELLS
Updated Date: 10/03/2012
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Methane Gas Potential contaminants in landfill cap soils: PCBs PAHs TPH 8 RCRA metals Dioxin Herbicides Pesticides Note that sampling performed in 2012 did not find concentrations of these contaminants above screening levels that are protective of human health.

NARR ID: 5747344
NARR Code: Site Location
Created By: GWISTAR
Created Date: 10/17/2005
Updated By: GWISTAR
Updated Date: 10/17/2005

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

Decode for NarcdID: Site Location
NARR Comments: The 24-acre site's boundaries are NE Columbia Blvd. to the north, NE Killingsworth to the south, and about NE 72 and NE 78th Aves. to the west and east, respectively.

NARR ID: 5737842
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: RWELLS
Updated Date: 12/23/2011
Decode for NarcdID: Manner of Release
NARR Comments: Methane, carbon dioxide, and other gases have been generated at the landfill since the 1980s through the decomposition of organic wastes. The source and contaminant content (if any) of soils brought in for the landfill cap are unknown.

NARR ID: 5737843
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: RWELLS
Updated Date: 08/22/2014
Decode for NarcdID: Remedial Action
NARR Comments: (1/15/2001 TJS/SW) DEQ used the bankruptcy settlement funds to conduct post-closure activities at the landfill. However, due to underground fires and other problems, by 1998 most of the methane gas extraction wells were no longer functioning, and only passively vented methane gas. A new gas control system was necessary, as were repairs to the landfill cap and drainage system, but there were not enough funds in the settlement account to pay for this work. To address the problem, in June 1999 the Environmental Quality Commission adopted a temporary rule designating methane gas from abandoned landfills, under specified conditions, as a hazardous waste. DEQ designated KFD as an Orphan project in July 1999, and used funds from the Solid Waste Orphan Site Account to design and install a new methane gas control system, and implement upgrades to the landfill cover, site drainage, and site security. DEQ completed the design of the new landfill gas (LFG) system in August 1999. DEQ installed 38 new LFG extraction wells in September 1999. The rest of the upgrades were completed in early 2000. The site has been referred back to the Solid Waste program for long-term monitoring. In 2010, sediment from the Laurelhurst pond dredging action was placed at the KFD landfill for capping material. Prior to removing the sediment from the pond, analysis of RCRA 8 metals, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), total petroleum hydrocarbons (TPH), E.coli, and total organic carbon was conducted. Sediment that was considered clean fill was transported to the KFD landfill. Sediment with PCB detections were capped in place at Laurelhurst Park. The primary environmental exposure concerns for potential future park users are contact with site surface soil and exposure to landfill gas. It is not known if the soil imported to the site for use as a landfill cap, prior to the placement of the Laurelhurst pond dredge material, was tested prior to being placed at the site. In addition, the methane collection system was installed to inhibit the ability of methane vapors to migrate off-site, however the effectiveness of the system

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

was not assessed for a park user exposure scenario. (12/23/2011 RWA/CU) As part of a proposed redevelopment of the KFD landfill into Cully Park, the City of Portland and Verde requested DEQ brownfield assistance to determine if unacceptable risks were associated with the change of use for the site. The Oregon Health Authority is also providing technical assistance through community outreach, education, and the development of a health consultation following sampling. (7/29/2012 RWA) Sampling of surface soils and ambient air was conducted in April 2012. Soil samples were analyzed for asbestos, PCBS, herbicides, organochlorine pesticides, RCRA 8 metals, PAHs, dioxin, and TPH. All soil samples were below urban residential exposure RBCs for all contaminants of interest. Ambient air data showed consistent levels of ethylbenzene and naphthalene with the Portland metro area. (5/14/2014 RWA) As part of park redevelopment activities, approximately 45,000 yd3 of soil will be imported to Cully Park. One of the source properties for the imported soil is located in South Waterfront (Block 43). DEQ and Oregon Health Authority have reviewed site data associated with soil and groundwater sampling at Block 43 and have determined that the soil planned for excavation at Block 43 is protective of future park users and workers, provided appropriate protocols are followed (that are presented in the Contaminated Media Management Plan for Block 43, dated November, 2013 and the DEQ protocol lettters, dated March, 2014). (RWA 8/2014) Additional soil from the Woodstock/Eastmoreland sewer rehabilitation project is being imported to Cully Park for use as cover. Laboratory analysis of soil borings collected from the sewer rehabilitation project area showed that the soil is suitable for import to Cully Park (soil meets applicable screenign levels considered safe for use at the Park). The DEQ approval letter is included in WebDocs. Soil import to Cully Park is scheduled for the spring-fall of 2014, with park completion scheduled for Fall, 2015.

NARR ID: 5753762
NARR Code: Substances of Concern
Created By: RWELLS
Created Date: 12/23/2011
Updated By: RWELLS
Updated Date: 12/23/2011
Decode for NarcdID: Substances of Concern
NARR Comments: Methane Gas and VOCs in outdoor air Soil: PCBs TPH PAHs 8 RCRA metals Pesticides Herbicides Dioxin

NARR ID: 5737844
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 03/22/2017
Decode for NarcdID: Health Threats
NARR Comments: Methane gas is the major potential site hazard. On-site monitoring is conducted monthly. If elevated levels of gas are detected, monitoring is increased to as often as daily, and several off-site houses and mobile homes are also monitored. So far, no off-site monitoring points have shown dangerous levels of methane. Operation of the new gas extraction wells should help to control methane levels and prevent fire hazards. The soil used for the landfill cap is of unknown origin and chemicals of potential concern were: TPH, metals,

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

PCBs, PAHs, herbicides, pesticides, and dioxins. Subsequent sampling of surface soils and ambient air, with analyses for asbestos, PCBs, herbicides, organochlorine pesticides, RCRA 8 metals, PAHs, dioxins, and TPH showed no contaminants in soil or air that exceeded appropriate risk levels.

NARR ID: 5753763
NARR Code: Water Use (Current/Reasonably Likely)
Created By: RWELLS
Created Date: 12/23/2011
Updated By: RWELLS
Updated Date: 12/23/2011
Decode for NarcdID: Water Use (Current/Reasonably Likely)
NARR Comments: Water is currently not used at the site, however the city of Portland provides drinking water to surrounding properties and would likelyl be the source of drinking water for the site.

NARR ID: 5753761
NARR Code: Site History
Created By: RWELLS
Created Date: 12/23/2011
Updated By: RWELLS
Updated Date: 07/18/2012
Decode for NarcdID: Site History
NARR Comments: (12/23/11/RWA/CU) Previous use of the property included agricultural activity and a gravel quarry operation. In the early 1980 s Riedel Waste System (RWS) began operation of the Killingsworth Fast Disposal (KFD) landfill by accepting demolition waste under a DEQ permit. The landfill was permanently closed in 1990. Following closure, the owner installed a landfill gas collection system. Shortly thereafter, RWS informed DEQ that it was financially unable to perform post-closure maintenance and monitoring activities. RWS later abandoned the site and was eventually administratively dissolved by the Secretary of State for failure to pay annual license fees. By the mid-1990's, the landfill gas collection system had become unsafe and unreliable. High methane levels were reported throughout the landfill, threatening neighboring residences and businesses. Several subterranean fires occurred in the landfill, further damaging the existing gas collection system and the geomembrane cap. In 1995, DEQ began performing maintenance and monitoring to prevent further degradation of the property and to protect human health and the environment. By 1998, DEQ had determined that a new landfill gas collection system was necessary to prevent migration and possible explosion of methane in surrounding areas. In early 1999, DEQ determined that conditions at the property presented a substantial and imminent threat to human health. DEQ began performing actions at the property to mitigate threats to human health posed by methane that included: installation of new landfill gas extraction wells, piping, blowers and flare tower; grading and drainage improvements; and extensive repair of the geomembrane cap. These activities were completed in the fall of 2000, at a total cost of approximately $1,500,000. DEQ funded the activities primarily from the Solid Waste Orphan Site Account established under Oregon Revised Statutes (ORS) 465.381. DEQ did not accept ownership of the property. In 2000, Multnomah County took possession of the property through tax foreclosure. In 2002, DEQ and the City of Portland entered into an intergovernmental agreement that shifted operation and maintenance of the closed landfill from DEQ to

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

the city. The ownership of the property was also transferred at no cost from Multnomah County to the city of Portland s Bureau of Parks and Recreation. Since that time, the city of Portland and Metro have entered into a separate agreement where Metro manages the site for the city of Portland. In 2010, sediment from the Laurelhurst pond dredging action was placed at the KFD landfill for capping material. Prior to removing the sediment from the pond, analysis of RCRA 8 metals, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), total petroleum hydrocarbons (TPH), E.coli, and total organic carbon was conducted. Sediment that was considered clean fill was transported to the KFD landfill. Sediment with PCB detections were capped in place at Laurelhurst Park. (7/29/2012 RWA) Sampling of surface soils and ambient air was conducted in April 2012. Soil samples were analyzed for asbestos, PCBS, herbicides, organochlorine pesticides, RCRA 8 metals, PAHs, dioxin, and TPH. All soil samples were below urban residential exposure RBCs for all contaminants of interest. Ambient air data showed consistent levels of ethylbenzene and naphthalene with the Portland metro area.

NARR ID: 5754803
NARR Code: 1922
Created By: RWELLS
Created Date: 08/15/2013
Updated By: GWISTAR
Updated Date: 11/15/2017
Decode for NarcdID: Current Site Summary Statement
NARR Comments: [May 2017] Sampling of surface soil and ambient air was conducted in April 2012. Soil samples were analyzed for asbestos, PCBs, herbicides, organochlorine pesticides, RCRA 8 metals, PAHs, dioxins, and TPH. All soil samples were below urban residential exposure risk-based concentrations for contaminants of interest. Ambient air data showed levels of ethylbenzene and naphthalene consistent with levels in the Portland metro area. Approximately 80,000 yd3 of soil was imported to the park in 2014/2015 from Block 43 in South Waterfront and the Woodstock/Eastmoreland sewer rehabilitation project in SE Portland. Prior to importing the soil to Cully Park, the soil was tested for contaminants, with no contaminants found above health-based screening levels. Approximately 25,000 yd3 of soil is planned for import to the park from the Port of Portland International Center property in NE Portland. The stockpile soil was evaluated using a site-specific park user health-based screening level for benzo(a)pyrene and is considered protective for future park workers and users. DEQ approved importing the soil in May 2017. DEQ continues to work in collaboration with Verde and the City of Portland to ensure that site conditions remain protective of future park workers and users throughout the development process.

Administrative Action:
Action ID: 9440
Region: Northwestern Region
Complete Date: 08/05/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/12/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

Action Code Flag: False
Action: Letter Agreement
Further Action: Low
Comments: Not reported

Action ID: 9518
Region: Northwestern Region
Complete Date: 07/31/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/15/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: TARGETED BROWNFIELD ASSESSMENT
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 12/09/2015
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/09/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9476
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Refer to Program
Further Action: Not reported
Comments: Not reported

Action ID: 9453
Region: Headquarters
Complete Date: 06/30/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

Action: ORPHAN SITE
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 07/20/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9459
Region: Headquarters
Complete Date: 11/23/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9473
Region: Headquarters
Complete Date: 06/30/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL DESIGN
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Headquarters
Complete Date: 07/12/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed

KILLINGSWORTH FAST DISPOSAL LANDFILL (KFD) (Continued) **S115330254**

Further Action: Not reported
Comments: Not reported

Action ID: 9427
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Excluded from confirmed release definition
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 133467
Operation Status: Inactive
Common Name: Killingsworth Landfill
Yrs of Operation: early 1980s to 1990
Comments: landfill
Updated Date: 09/02/1998
Updated By: kpd
Decode for OpstatID: Inactive
Operations SIC Id: 196634
SIC Code: 4953
Created By: Not reported
Created Date: 12/17/2002

OR BROWNFIELDS:
Geolocation Id: 40703
Status: NO FURTHER STATE ACTION REQUIRED
Lat/Long: 45.5645 / -122.586

R102 **EUDALY BROS** **OR ECSI** **U000432972**
West **6920 NE 42ND AVE** **OR LUST** **N/A**
1/2-1 **PORTLAND, OR 97218** **OR UST**
0.893 mi. **OR VCP**
4715 ft. **Site 1 of 6 in cluster R** **OR UIC**

Relative:
Higher

Actual:
24 ft.

ECSI:

State ID Number:	4495
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	No Further Action
FACA ID:	89955
Further Action:	0
Lat/Long (dms):	45 34 25.00 / -122 37 11.30
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	2.00
Range Zone:	E
Section Coord:	18
Qtr Section:	BC
Tax Lots:	5300
Size:	1.1 acres
NPL:	False
Orphan:	False
Updated By:	SRAPP
Update Date:	03/12/2014
Created Date:	08/18/2005
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	No Further Action
Decode For Legislative:	Not reported

Narrative:

NARR ID:	5747070
NARR Code:	Contamination
Created By:	DMESSEN
Created Date:	08/18/2005
Updated By:	KDANA
Updated Date:	01/04/2012
Decode for NarcdID:	Contamination

NARR Comments: (8/18/05 DM/SAP) Contamination from waste oil from a waste oil tank. Drip pans were inverted to drain directly to the ground. Oil contaminated soil must be removed. (7/27/11 JKS) Confirmation sampling performed following the March 2009 removal of approximately 4.2 tons of petroleum-impacted soil revealed diesel-range hydrocarbons at concentrations as high as 9,730 mg/kg in the west excavation sidewall at a depth of 3 feet bgs. Between April 2009 and July 2010, test pit investigations to delineate the extent of contamination were conducted at the site. Diesel-range hydrocarbons were not detected in delineation soil samples at concentrations exceeding 1,000 mg/kg. Gasoline and heavy oil hydrocarbons were detected at maximum concentrations of 42 mg/kg and 539 mg/kg, respectively. Petroleum hydrocarbon contamination was found to be restricted to the vicinty of the AST containment and vehicle fueling

EUDALY BROS (Continued) **U000432972**

areas.

NARR ID: 5747071
NARR Code: Manner of Release
Created By: DMESSEN
Created Date: 08/18/2005
Updated By: DMESSEN
Updated Date: 08/18/2005
Decode for NarcdID: Manner of Release
NARR Comments: Release to the environment caused from an oil spill. Time of release is not known.

NARR ID: 5753461
NARR Code: Pathways Other Hazards
Created By: JSCHATZ
Created Date: 07/27/2011
Updated By: JSCHATZ
Updated Date: 07/27/2011
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: (7/27/11 JS) Complete exposure pathways for soil include Soil Ingestion, Dermal Contact and Inhalation for occupational worker, construction worker and excavation worker receptors. Also complete for soil are Volatiliztion to Oudoor Air and Vapor Intrusion into Building for occupational worker receptors. Complete exposure pathways for groundwater include Groundwter in Excavation for construction and excavation worker receptors and Volatilization to Outdoor Air and Vapor Intrusion into Building for occupational worker receptors.

NARR ID: 5747072
NARR Code: Remedial Action
Created By: DMESSEN
Created Date: 08/18/2005
Updated By: JSCHATZ
Updated Date: 07/27/2011
Decode for NarcdID: Remedial Action
NARR Comments: (8/18/05 DM/SAP) Site was referred to the site assessment program through the stormwater facility inspector. (7/27/11 JS/TANKS) In March 2009, petroleum impacted soil was removed from the vicinity of utility lines running beneath the sidewalk of the vehicle fueling area on the south side of the AST containment. Diesel product spilled on the sidewalk had entered the subsurface through a hole in the sidwalk installed for future utility installation. The excavation was taken to a depth of 3-4 feet bgs. Approximately 4.2 tons of impacted soil was removed from the vicinity of the utility trench.

Administrative Action:
Action ID: 9511
Region: Northwestern Region
Complete Date: 07/27/2011
Rank Value: Not reported
Cleanup Flag: True
Created Date: 07/27/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION

EUDALY BROS (Continued) **U000432972**

Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 12/20/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/20/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: 08/18/2005
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/18/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 08/18/2005
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/18/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

LUST:
Region: North Western Region
Facility ID: 26-93-0075
Cleanup Received Date: 04/19/1993
Cleanup Start Date: 12/09/1993
Cleanup Complete Date: 02/12/1996
Decode for Region: North West Region

UST:
Facility ID: 6326
Facility Telephone: (503) 288-7469

EUDALY BROS (Continued) **U000432972**

Permittee Name: ROGER E ASKELSON, VP
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 7
Number of Tanks: 7

VCS:
ECS Site ID: 4495
Facility Size: 1.1 acres
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 12/20/2011
End Date: 12/20/2011
Facility Status: Completed
Program: ICP
Latitude: 45.5736
Longitude: -122.6198

OR UIC:
UIC Well #: 1
Type: 5W10
Type Description: Cesspools
Status: Abandoned w/o Authority
UIC Number: 12306
Facility Status: Formal Closure
Lat/Long: 45.573399 / -122.6197

UIC Well #: 2
Type: 5X28
Type Description: Motor Vehicle Waste Disposal Wells
Status: Formal Closure
UIC Number: 12306
Facility Status: Formal Closure
Lat/Long: 45.573399 / -122.6197

UIC Well #: 3
Type: 5D2
Type Description: Storm Water Drainage
Status: Formal Closure
UIC Number: 12306
Facility Status: Formal Closure
Lat/Long: 45.573399 / -122.6197

103
West
1/2-1
0.908 mi.
4796 ft.

THOMSON EQUIPMENT COMPANY
7201 NE 42ND AVE
PORTLAND, OR 97218

OR ECSI **S108663061**
OR HSIS **N/A**
OR NPDES
OR UIC

Relative:
Lower

Actual:
16 ft.

ECSI:
State ID Number: 4162
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 38098
Further Action: 256

THOMSON EQUIPMENT COMPANY (Continued) **S108663061**

Lat/Long (dms):	45 34 31.10 / -122 37 15.20
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	13
Qtr Section:	AA
Tax Lots:	1200
Size:	1.05 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	08/12/2013
Created Date:	05/27/2004
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	High
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported

Narrative:

NARR ID:	5745267
NARR Code:	Contamination
Created By:	CHARMAN
Created Date:	07/29/2004
Updated By:	SFORTUN
Updated Date:	07/18/2012
Decode for NarcdID:	Contamination
NARR Comments:	One of several sites suspected of being a contributing source of high levels of chromium in the Buffalo Slough water body, which is part of the Columbia Slough. Site was discovered as part of Columbia Slough Area-wide Site Discovery project.

Administrative Action:

Action ID:	9424
Region:	Not reported
Complete Date:	05/27/2004
Rank Value:	Not reported
Cleanup Flag:	False
Created Date:	05/27/2004
Decode for AgencyID:	Department of Environmental Quality
Decode for RegionID:	Not reported
Category:	Administrative Action
Action Code Flag:	False
Action:	Site added to database
Further Action:	Not reported
Comments:	Not reported

Action ID:	9508
Region:	Northwestern Region
Complete Date:	05/27/2004
Rank Value:	Not reported
Cleanup Flag:	False
Created Date:	05/27/2004
Decode for AgencyID:	Department of Environmental Quality

THOMSON EQUIPMENT COMPANY (Continued) **S108663061**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: High
Comments: Not reported

HSIS:

Facility ID:	048793
Department Or Division Of Company:	Not reported
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	N
Contains 112R:	N
NAICS Code 1:	423830
NAICS Desc 1:	IND MACHINERY & EQP WHSLE
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	JOHN THOMSON
Business Phone:	5032879000
Mailing Address:	PO BOX 13500
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97213
No. of Employees:	4
Day Phone:	5032879000
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	JOHN THOMSON
Emergency Procedure:	Not reported
Business Type:	CONSTRUCTION EQUIPMENT DISTRIBUTOR
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported

THOMSON EQUIPMENT COMPANY (Continued) **S108663061**

Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	OIL
Physical Description:	LIQUID
Case Number:	90622585
Facility Id:	048793
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	02
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	10-19
Most Hazardous Ingridient:	PETROLEUM HYDROCARBON
United Nations/north America 4 Digit Class Number:	1270
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OIL
United Nations/north America 4 Digit Class Number:	1270
Chemical Abstract Service Identifier Number:	90622585
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported

THOMSON EQUIPMENT COMPANY (Continued) **S108663061**

Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	048793
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported

THOMSON EQUIPMENT COMPANY (Continued) **S108663061**

Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	CARBON DIOXIDE
Physical Description:	GAS
Case Number:	124389
Facility Id:	048793
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1013
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	CARBON DIOXIDE
United Nations/north America 4 Digit Class Number:	1013
Chemical Abstract Service Identifier Number:	124389
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported

THOMSON EQUIPMENT COMPANY (Continued) **S108663061**

Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	048793
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	04
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Chemical Abstract Service Identifier Number:	74862
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported

THOMSON EQUIPMENT COMPANY (Continued) **S108663061**

Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NPDES:

WQ File Nbr:	111330
Legal Name:	Thomson Equipment Co.
Region:	NWR
Pri SIC:	7353
Facility Type:	HEAVY CONSTRUCT. EQUIP. RENTAL
Latitude:	45.5753
Longitude:	-122.6209
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR116020
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	08/01/2017
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	956583
Class:	MINOR
Start Date:	04/30/2001
Region Decode:	North West Region

OR UIC:

UIC Well #:	1
Type:	5D2
Type Description:	Storm Water Drainage
Status:	Active
UIC Number:	13403
Facility Status:	Not Registered
Lat/Long:	45.575401 / -122.6208

R104 **CHIMNEY TEK/SPLINTER FIXTURES AND PRODUCTS** **OR ECSI** **S106780154**
West **3881 NE BRYANT ST** **N/A**
1/2-1 **PORTLAND, OR 97218**
0.910 mi.
4805 ft. **Site 2 of 6 in cluster R**

Relative:
Higher

Actual:
33 ft.

ECSI:

State ID Number:	4159
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	83299
Further Action:	0
Lat/Long (dms):	45 34 24.20 / -122 37 13.40
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	13
Qtr Section:	Not reported
Tax Lots:	Not reported
Size:	Not reported
NPL:	False
Orphan:	False
Updated By:	SMILLER
Update Date:	05/18/2016
Created Date:	05/26/2004
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported
Alias Name:	Previous address listed as 6865 NE 42ND AVE A&B

Narrative:

NARR ID:	5745264
NARR Code:	Contamination
Created By:	CHARMAN
Created Date:	07/29/2004
Updated By:	CHARMAN
Updated Date:	07/29/2004
Decode for NarcdID:	Contamination
NARR Comments:	One of several sites suspected of being a contributing source of high levels of chromium in the Buffalo Slough water body, which is part of the Columbia Slough. Site was discovered as part of Columbia Slough Area-wide Site Discovery project.

Administrative Action:

Action ID:	9424
Region:	Not reported
Complete Date:	05/26/2004
Rank Value:	Not reported
Cleanup Flag:	False
Created Date:	05/26/2004
Decode for AgencyID:	Department of Environmental Quality

CHIMNEY TEK/SPLINTER FIXTURES AND PRODUCTS (Continued) **S106780154**

Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 05/26/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/26/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

R105
West
1/2-1
0.915 mi.
4829 ft.

KENRICH PRODUCTS, INC. **OR ECSI** **S106780153**
6853 NE 42ND AVE., B **N/A**
PORTLAND, OR 97218

Site 3 of 6 in cluster R

Relative:
Higher

Actual:
24 ft.

ECSI:
State ID Number: 4158
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 83294
Further Action: 0
Lat/Long (dms): 45 34 26.00 / -122 37 25.70
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 13
Qtr Section: A
Tax Lots: 700
Size: 1.78 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 03/04/2009
Created Date: 05/26/2004
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported

KENRICH PRODUCTS, INC. (Continued) **S106780153**

Narrative:
NARR ID: 5745263
NARR Code: Contamination
Created By: CHARMAN
Created Date: 07/29/2004
Updated By: GWISTAR
Updated Date: 03/04/2009
Decode for NarcdID: Contamination
NARR Comments: One of several sites suspected of being a contributing source of high levels of chromium in the Buffalo Slough water body, which is part of the Columbia Slough. Site was found as part of a Columbia Slough areawide site discovery project.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 05/26/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/26/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 05/26/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/26/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

R106 **AMERICAN STEEL PRODUCTS (FORMER)** **OR ECSI** **S106780152**
West **3885 NE BRYANT ST.** **N/A**
1/2-1 **PORTLAND, OR 97211**
0.915 mi.
4830 ft. **Site 4 of 6 in cluster R**

Relative:
Higher

Actual:
24 ft.

ECSI:
State ID Number: 4156
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 83293
Further Action: 0
Lat/Long (dms): 45 34 26.40 / -122 37 23.90

AMERICAN STEEL PRODUCTS (FORMER) (Continued) **S106780152**

County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 13
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 09/07/2016
Created Date: 05/26/2004
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: Previous address listed as 6849 NE 42nd Ave, C

Narrative:
NARR ID: 5745262
NARR Code: Contamination
Created By: CHARMAN
Created Date: 07/29/2004
Updated By: SMILLER
Updated Date: 06/08/2016
Decode for NarcdID: Contamination
NARR Comments: One of several sites suspected of being a contributing source of chromium to the Buffalo Slough water body, which is part of the Columbia Slough. Site was discovered as part of Columbia Slough Area-wide Site Discovery project.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 05/26/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/26/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 05/26/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/26/2004
Decode for AgencyID: Department of Environmental Quality

AMERICAN STEEL PRODUCTS (FORMER) (Continued) **S106780152**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

R107
West
1/2-1
0.915 mi.
4831 ft.

JOHN L. JERSEY AND SON, INC./COE PROPERTIES **OR ECSI S106655868**
7015 NE 42ND AVE. **OR VCP N/A**
PORTLAND, OR 97218 **OR UIC**

Site 5 of 6 in cluster R

Relative:
Higher

Actual:
22 ft.

ECSI:
State ID Number: 4161
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 15032
Further Action: 0
Lat/Long (dms): 45 34 26.40 / -122 37 16.00
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 13
Qtr Section: AA
Tax Lots: 1600; 1700; 1800; 1900
Size: 3.35 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 07/14/2014
Created Date: 05/27/2004
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: Express Transport
Alias Name: Absolute Truck Repair, Inc.

Narrative:
NARR ID: 5745265
NARR Code: Contamination
Created By: CHARMAN
Created Date: 07/29/2004
Updated By: SMILLER
Updated Date: 06/21/2010
Decode for NarcdID: Contamination
NARR Comments: One of several sites suspected of being a contributing source of high levels of chromium in the Buffalo Slough water body, which is part of the Columbia Slough. Site was discovered as part of Columbia Slough

JOHN L. JERSEY AND SON, INC./COE PROPERTIES (Continued) **S106655868**

Area-wide Site Discovery project. [6/21/10 SAM/SA] Metals and PAHs from daily activites may be present in site soils. Job site soils may have been transferred to site. Job site soils may include metals, PAHs or PCBs.

NARR ID: 5752271
NARR Code: Data Sources
Created By: SMILLER
Created Date: 06/21/2010
Updated By: KDANA
Updated Date: 07/02/2012
Decode for NarcdID: Data Sources
NARR Comments: DEQ Strategy Recommendation (June 2010). ESCI File #5733 (Dale Jersey Property).

NARR ID: 5752268
NARR Code: General Site Description
Created By: SMILLER
Created Date: 06/21/2010
Updated By: KDANA
Updated Date: 07/02/2012
Decode for NarcdID: General Site Description
NARR Comments: [6/21/10 SAM/SA] The site is comprised of 4 adjoining tax lots next to the head of Buffalo Slough, an arm of the Columbia Slough. Land use is fairly evenly mixed of industrial, residential and open spaces within 0.5 miles of the site. The immediate surrounding area along Columbia Blvd. and NE 42nd Ave is industrial, with the exception of Broadmoor Golf Course about 500ft to the west. Two residential properties share the sites western property line.

NARR ID: 5752270
NARR Code: Manner of Release
Created By: SMILLER
Created Date: 06/21/2010
Updated By: SMILLER
Updated Date: 06/21/2010
Decode for NarcdID: Manner of Release
NARR Comments: unknown

NARR ID: 5752148
NARR Code: Site Ownership
Created By: SMILLER
Created Date: 05/04/2010
Updated By: SMILLER
Updated Date: 05/04/2018
Decode for NarcdID: Site Ownership
NARR Comments: [7/29/16 SAM] Current Tenant: Mark Morbray Clean Karma Gardens markmobray@comcast.net 503-421-8974 [5/4/10 SAM/SA] Once occupied by John L. Jersey and Son, Inc., left site in spring 2009. Kenneth Coe bought property from Jersey family in 2004. Coe Properties. 7070 SW Baylor St; Portland OR 97223 503-670-7780

NARR ID: 5752269
NARR Code: Pathways Other Hazards
Created By: SMILLER
Created Date: 06/21/2010
Updated By: SMILLER

JOHN L. JERSEY AND SON, INC./COE PROPERTIES (Continued) **S106655868**

Updated Date: 06/21/2010
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: [6/22/10 SAM/SA] Contaminated underground soils and groundwater could pose a threat to future utility trench workers. Stormwater: Site stormwater is removed via city stormpipe system to Whitaker Slough(outfall 73A). A 1996 Buffalo Slough Remedial Investigation/Feasibility Study report notes that one private 2 inch stormwater outfall is located on the Jersey property and discharges into Buffalo Slough. However, a review of City of Portland records with City of Portland stormwater personnel did not show this outfall. During a site visit on 5/ 19/10, the site s stormwater drainage system appeared to be in dis-repair and in need of maintenance.

NARR ID: 5752267
NARR Code: Site History
Created By: SMILLER
Created Date: 06/21/2010
Updated By: SMILLER
Updated Date: 06/21/2010
Decode for NarcdID: Site History
NARR Comments: [6.21.10 SAM/SA] Site specific history is limited. The USGS aerial map from 1952, suggests the site near Buffalo Slough was probably used as residential and/or farming. The next chronologically Web-available USGS aerial map in 1973 suggests the site has been developed for industrial purposes. This is consistent with the general Portland city planning that areas near the Columbia Slough were developed for industrial purposes in the 1960s. The former tenant John L. Jersey and Son, Inc. is an excavation contractor for construction, grading and demolition. The Jersey sur-name has been associated with the site since the early 1970s. John L. Jersey and Son, Inc. left the site in Spring 2009. Activities on site included truck storage, truck maintenance, parts cleaning with solvents and a wash pad is present on site. All activities, except for truck storage, were conducted on asphalt and/or concrete per the site s 2008 Stormwater Management Plan. Two new tenants are on site with similar activites as the previous actvities.

Administrative Action:
Action ID: 9425
Region: Northwestern Region
Complete Date: 06/22/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/25/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Medium
Comments: Not reported

Action ID: 9521
Region: Northwestern Region
Complete Date: 06/24/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/02/2011

JOHN L. JERSEY AND SON, INC./COE PROPERTIES (Continued) **S106655868**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: OPTN
Further Action: Medium
Comments: Not reported

Action ID: 9449
Region: Northwestern Region
Complete Date: 06/22/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/02/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: 0
Comments: Not reported

Action ID: 9506
Region: Northwestern Region
Complete Date: 06/22/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/02/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: Medium
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 11/30/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/22/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 05/07/2015
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/02/2013
Decode for AgencyID: Department of Environmental Quality

JOHN L. JERSEY AND SON, INC./COE PROPERTIES (Continued) **S106655868**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 07/14/2015
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/19/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/14/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: 05/27/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/27/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 05/27/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/27/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region

JOHN L. JERSEY AND SON, INC./COE PROPERTIES (Continued) **S106655868**

Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

VCS:
ECS Site ID: 4161
Facility Size: 3.35 acres
Action: SITE INVESTIGATION
Start Date: 07/14/2015
End Date: Not reported
Facility Status: Active
Program: ICP
Latitude: 45.574
Longitude: -122.6211

OR UIC:
UIC Well #: 1
Type: 5D2
Type Description: Storm Water Drainage
Status: Active
UIC Number: 11856
Facility Status: Not Registered
Lat/Long: 45.573898 / -122.6206

R108 **DALE JERSEY PROPERTY** **OR ECSI S112058713**
West **6845 NE 42ND AVE** **OR VCP N/A**
1/2-1 **PORTLAND, OR 97218**
0.918 mi.
4848 ft. **Site 6 of 6 in cluster R**

Relative:
Higher

Actual:
25 ft.

ECSI:
State ID Number: 5733
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: No Further Action
FACA ID: 124472
Further Action: 0
Lat/Long (dms): 45 34 24.60 / -122 37 14.16
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 13
Qtr Section: AD
Tax Lots: 100
Size: 0.51 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 11/07/2017

DALE JERSEY PROPERTY (Continued) **S112058713**

Created Date: 07/02/2012
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Not reported

Narrative:
NARR ID: 5754154
NARR Code: Site Contacts
Created By: SMILLER
Created Date: 08/14/2012
Updated By: SMILLER
Updated Date: 08/14/2012
Decode for NarcdID: Site Contacts
NARR Comments: Legal Owner:Dale Jersey 503-317-3240 Contact: John L Jersey c/o John L Jersey & Sons, Inc PO Box 1528 Scappoose, OR 97056 503-621-9873 jljiii@earthlink.net Randall A Reid Kleinfelder 9200 SW Nimbus Ave SUite A Portland, OR 97008 503-644-9447

NARR ID: 5754080
NARR Code: Data Sources
Created By: KDANA
Created Date: 07/02/2012
Updated By: SMILLER
Updated Date: 09/06/2012
Decode for NarcdID: Data Sources
NARR Comments: DEQ Strategy Recommendation (June 22, 2010). ECSI file #4161 (John L. Jersey & Son). Kleinfelder, Inc. Limited Phase II Environmental Site Assessment Report: Dale Jersey Property. June 2012.

NARR ID: 5754189
NARR Code: Remedial Action
Created By: SMILLER
Created Date: 09/06/2012
Updated By: SMILLER
Updated Date: 09/06/2012
Decode for NarcdID: Remedial Action
NARR Comments: [9/5/12 ICP/SAM]The Dale Jersey Property was first brought to the attention of the DEQ Cleanup Program in 2004 and at that time it was attached to the John L Jersey/Coe Property as ECSI#4161. The site was identified in the Columbia Slough Area-wide Site Discovery project, specifically to determine the source of high concentrations of chromium in the Buffalo Slough. DEQ prepared a Strategy Recommendation for the #4161 property in 2010. No comments about the Dale Jersey Property (tax lot 100) were noted in the Strategy Recommendation. In February 1993, a 2,500-gallon diesel underground storage tank(UST) located to the NE of the house, was decommissioned by removal (DEQ UST ID #4542). The tank was removed without giving DEQ 30- day or 3-day notices; however confirmation sampling and administrative paperwork was received by DEQ in March 1993. Diesel and gasoline (by TPH-HCID) were not detected in two confirmation soil samples. In April 2012 a limited Phase II Environmental Site Assessment was performed by Kleinfelder. A magnetometer survey did not find any subsurface USTs or metallic debris on site. Twenty (20) soil and three (3) groundwater samples from nine push probe points on roughly 75 foot centers, were collected and analyzed. An NFA determination is recommended for the Dale Jersey Property site based

DALE JERSEY PROPERTY (Continued) **S112058713**

on the following: In 1993, the UST was removed and confirmation sample results were non-detect for diesel and gasoline. 2012 groundwater sample results were below residential risk based values for petroleum, PAHs and VOCs. 2012 soil results were non-detect for petroleum. The site has not been a significant source of contaminants of concern to the Columbia Slough. Under the current residential/industrial use zoning this site does not pose a significant threat to human or ecological receptors.

NARR ID: 5754156
NARR Code: Substances of Concern
Created By: SMILLER
Created Date: 08/15/2012
Updated By: SMILLER
Updated Date: 08/15/2012
Decode for NarcdID: Substances of Concern
NARR Comments: [8/15/12 SAM/ICP] Possible petroleum products from storage of trucks and heavy equipment.

NARR ID: 5754155
NARR Code: Site History
Created By: SMILLER
Created Date: 08/15/2012
Updated By: SMILLER
Updated Date: 08/15/2012
Decode for NarcdID: Site History
NARR Comments: [8/15/12 SAM/ICP] This tax lot was split from ECSI file #4161 (John L. Jersey & Son) see this file for more general history. This tax lot was primarily used for storage of trucks and heavy equipment.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 07/02/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/02/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 08/13/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/02/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: Medium
Comments: Not reported

DALE JERSEY PROPERTY (Continued) **S112058713**

Action ID: 9425
Region: Northwestern Region
Complete Date: 09/06/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/14/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 09/06/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/06/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

VCS:
ECS Site ID: 5733
Facility Size: 0.51 acres
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 09/06/2012
End Date: 09/06/2012
Facility Status: Completed
Program: ICP
Latitude: 45.5735
Longitude: -122.6206

109
NNW
1/2-1
0.924 mi.
4881 ft.

PORTLAND INT'L AIRPORT - TAXIWAY T, CONCOURSE C **OR ECSI S118374562**
PORTLAND INTERNATIONAL AIRPORT **OR VCP N/A**
PORTLAND, OR 97218

Relative:
Lower

Actual:
20 ft.

ECSI:
State ID Number: 6038
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 137641
Further Action: 258
Lat/Long (dms): 45 35 26.90 / -122 36 13.00
County Code: 26.00
Score Value: Not reported

PORTLAND INT'L AIRPORT - TAXIWAY T, CONCOURSE C (Continued) **S118374562**

Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 8
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: KTHIESS
Update Date: 12/14/2015
Created Date: 10/02/2015
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Medium
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: ASIG
Alias Name: Aircraft Services International Group

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 10/02/2015
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/02/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 12/14/2015
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/02/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/14/2015
Decode for AgencyID: Department of Environmental Quality

PORTLAND INT'L AIRPORT - TAXIWAY T, CONCOURSE C (Continued) **S118374562**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Medium
Comments: Not reported

VCS:
ECS Site ID: 6038
Facility Size: Not reported
Action: SITE EVALUATION
Start Date: 12/14/2015
End Date: Not reported
Facility Status: Active
Program: VCP
Latitude: 45.5908
Longitude: -122.6036

S110 **AIRCRAFT SERVICE INT'L GROUP** **OR CRL** **S103842746**
NNE **(NEAR) 7000 NE AIRPORT WAY** **OR ECSI** **N/A**
1/2-1 **PORTLAND, OR 97211** **OR VCP**
0.947 mi.
5000 ft. **Site 1 of 2 in cluster S**

Relative:
Higher

Actual:
22 ft.

CRL:
Facility ID: 1832
Location ID: 40377
Status Code: LIS
Facility Status: SITE EVALUATION
Lat/Long: 45.5966 / -122.6125

ECSI:
State ID Number: 1832
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Listed on the CRL/Inventory
FACA ID: 40377
Further Action: 259
Lat/Long (dms): 45 35 48.00 / -122 36 45.00
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 6
Qtr Section: Not reported
Tax Lots: Not reported
Size: 2 acres
NPL: False
Orphan: False
Updated By: KTHIESS
Update Date: 12/12/2016
Created Date: 03/11/1996

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Medium-Low
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Not reported
Alias Name: ASIG
Alias Name: Port of Portland - Airport Tank Farm
Alias Name: Portland Fueling Facility - PDX
Alias Name: Previously listed a ECSI 5848. now ECSI 1832

Hazardous Release:
Substance ID.: 121996
Haz Release ID: 380381
Qty Released: 2,000 gal.
Date Released: 1/29/92
Update Date: 12/03/1996
Update By: Not reported
Substance Code: ECD228
Substance Name: PETROLEUM HYDROCARBONS
Substance Abbrev.: Not reported
Substance Category ID: 8534
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8534
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Comment ID: 303265
Release Code: General Comments
Release Comments: Jet fuel
Decode for Relcomcd: General Comments
Comment ID: 303266
Release Code: Release Containment
Release Comments: Other releases have also occurred.
Decode for Relcomcd: Release Containment
Sampling Result ID: 342043
Feature Id: Not reported
Hazard Release Id: 380381
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 15 feet
Start Date: 08/17/1995
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 31,000 ppm jet fuel
Last Update By: gmw
Update Date: 03/12/1996
Decode for MediumID: Soil

Substance ID.: 121608

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

Haz Release ID: 380382
Qty Released: Not reported
Date Released: Not reported
Update Date: 12/03/1996
Update By: Not reported
Substance Code: 71-43-2
Substance Name: BENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319178
Sub Alias Name: BENZOL
Substance Alias ID: 319179
Sub Alias Name: COAL NAPTHA
Substance Alias ID: 319180
Sub Alias Name: CYCLOHEXATRIENE
Substance Alias ID: 319181
Sub Alias Name: PHENE
Substance Alias ID: 319182
Sub Alias Name: PYROBENZOL
Sampling Result ID: 342044
Feature Id: Not reported
Hazard Release Id: 380382
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/03/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 130 ppb
Last Update By: gmw
Update Date: 03/12/1996
Decode for MediumID: Groundwater

Substance ID.: 120883
Haz Release ID: 380383
Qty Released: Not reported
Date Released: Not reported
Update Date: 12/03/1996
Update By: Not reported
Substance Code: 108-88-3
Substance Name: TOLUENE
Substance Abbrev.: Not reported
Substance Category ID: 8520

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316466
Sub Alias Name: BENZENE,METHYL-
Substance Alias ID: 316467
Sub Alias Name: METHACIDE
Substance Alias ID: 316468
Sub Alias Name: METHYLBENZENE
Substance Alias ID: 316469
Sub Alias Name: METHYLBENZOL
Substance Alias ID: 316470
Sub Alias Name: PHENYLMETHANE
Substance Alias ID: 316471
Sub Alias Name: TOLUOL
Sampling Result ID: 342045
Feature Id: Not reported
Hazard Release Id: 380383
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/03/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 830 ppb
Last Update By: gmw
Update Date: 03/12/1996
Decode for MediumID: Groundwater

Substance ID.: 120781
Haz Release ID: 380384
Qty Released: Not reported
Date Released: Not reported
Update Date: 12/03/1996
Update By: Not reported
Substance Code: 100-41-4
Substance Name: ETHYLBENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316146
Sub Alias Name: ETHYLBENZOL
Substance Alias ID: 316147
Sub Alias Name: PHENYLETHANE
Sampling Result ID: 342046
Feature Id: Not reported
Hazard Release Id: 380384
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/17/1995
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 6 ppm
Last Update By: gmw
Update Date: 03/12/1996
Decode for MediumID: Soil
Sampling Result ID: 342047
Feature Id: Not reported
Hazard Release Id: 380384
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/03/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 400 ppb
Last Update By: gmw
Update Date: 03/12/1996
Decode for MediumID: Groundwater

Substance ID.: 121051
Haz Release ID: 380385
Qty Released: Not reported
Date Released: Not reported
Update Date: 12/03/1996
Update By: Not reported
Substance Code: 1330-20-7
Substance Name: XYLENEs
Substance Abbrev.: Not reported
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317017
Sub Alias Name: DIMETHYLBENZENEs
Substance Alias ID: 317018
Sub Alias Name: XYLOLs
Sampling Result ID: 342048
Feature Id: Not reported
Hazard Release Id: 380385
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/17/1995
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 6 ppm
Last Update By: gmw
Update Date: 03/12/1996
Decode for MediumID: Soil
Sampling Result ID: 342049
Feature Id: Not reported
Hazard Release Id: 380385
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/03/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2,900 ppb
Last Update By: gmw
Update Date: 03/12/1996
Decode for MediumID: Groundwater

Substance ID.: 121994
Haz Release ID: 388204
Qty Released: unk
Date Released: pre-1989 and pre 1995
Update Date: 06/06/2014
Update By: KTHIESS
Substance Code: ECD222
Substance Name: PETROLEUM
Substance Abbrev.: Not reported
Substance Category ID: 8533
Substance Category: Petroleum Related Releases for OSPIRG Report

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8533
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002

Substance ID.: 121868
Haz Release ID: 388257
Qty Released: Not reported
Date Released: Not reported
Update Date: 09/23/2015
Update By: KTHIESS
Substance Code: 91-20-3
Substance Name: NAPHTHALENE
Substance Abbrev.: Not reported
Substance Category ID: 8494
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8494
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317793
Sub Alias Name: MOTH BALLS
Substance Alias ID: 317794
Sub Alias Name: NAPHTHENE
Substance Alias ID: 317795
Sub Alias Name: TAR CAMPHOR

Narrative:
NARR ID: 5735737
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: KTHIESS
Updated Date: 09/22/2015
Decode for NarcdID: Contamination
NARR Comments: (9/22/2015 KRT) A jet A fuel release occured at the Bulk Fuel Storage Facility prior to 1989 which promped Reidel Environmental to install six soil borings/monitoring wells around the periphery of the Bulk Fuel Storage Facility. No release date or fuel release quantity are know. No remedial actions were taken. This release was associated with the Chevron Pipe Line serving the Bulk Fuel Storage Facility. (3/12/96 GMW/SAS) In January 1992, drain valves were left open at the base of two 840,000-gallon above-ground fuel tanks at the site, resulting in the release of about 2,000 gallons of jet fuel. The release caused significant contamination of soils within the containment area. Some jet fuel flowed beyond the containment area as well. In the immediate aftermath of the release, approximately 1,250 gallons of fuel were recovered, and 600 yards of contaminated soil were excavated and removed. However, not all contaminated soil could be excavated, due to concerns about undermining tank foundations.

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

(9/22/2015 KRT) During the August 1995 removal of a 10,000-gallon underground tank storing off-spec jet fuel mixtures, extensive soil and groundwater contamination was found around the UST. Some contaminated soil was left in place during the removal. Prior to 2002, subsurface investigations at Bulk Fuel Storage Facility indicated soil and groundwater contamination from known and unknown past releases. Up to 31,000 ppm of hydrocarbons remain in soil; shallow groundwater contained total BTEX in the 100 ppb to 3,000 ppb range. (10/25/02 cwh/sas) The site risk was rescored in 2002 based upon submission of groundwater data and a request from BBA Aircraft Shared Services for a no further action determination. In return in 2002, DEQ sent a letter to ASIG requesting Expanded Preliminary Assessment of Bulk Fuel Storage Facility at the Portland International Airport. This request was partially completed in 2012 with soil investigation at the former UST and sampling of groundwater from nine site monitoring wells.

NARR ID: 5735738
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: KTHIESS
Updated Date: 09/23/2015
Decode for NarcdID: Data Sources
NARR Comments: NWR LUST log #26-89-0012 indicates administrative project transfer to DEQ's Cleanup Program. 2015 DEQ. Summary Report of ASIG s Bulk Fuel Storage Facility Portland International Airport. ECSI # 1832/5848 March 13, 2015 2014 Advanced Remediation Technologies, Inc. (ART). Summary Report of ASIG Bulk Fuel Storage Facility ECSI 1832/5848 (and three other projects March 31, 2013 2012 Ash Creek Associates/APEX, Land and Beneficial Water Use Survey Update Portland International Airport Portland Oregon. December 12, 2012 2012 Advanced Remediation Technology, ASIG PDX Fuel Storage Investigation (emailed workplan). September 14, 2012 2002 DEQ, Bulk Fuel Storage Facility Portland International Airport, Request for Expanded Preliminary Assessment. July 9, 2002 1990 Chevron Pipe Line Company, Portland Airport, Corrective Action Plan. December 20, 1990

NARR ID: 5755168
NARR Code: General Site Description
Created By: KTHIESS
Created Date: 06/06/2014
Updated By: GWISTAR
Updated Date: 11/05/2015
Decode for NarcdID: General Site Description
NARR Comments: Additional information on nature and extent of release fuel fuel requested by DEQ in 2012 and 2015 as follow up to the 2002 DEQ request for an Expanded Preliminary Assessment. See also ECSI #5848, Portland International Airport Bulk Fuel Tanks.

NARR ID: 5735739
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: KTHIESS
Updated Date: 09/23/2015
Decode for NarcdID: Hazardous Substance/Waste Types

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

NARR Comments: Petroleum hydrocarbons as jet fuel dominantly in the kerosene range. Benzene, napthalene and TPH as diesel have exceeded DEQ Risk Based Concentrations in groundwater from site monitoring wells.

NARR ID: 5735740
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: KTHIESS
Updated Date: 12/12/2016
Decode for NarcdID: Site Location
NARR Comments: Jet fuel bulk plant includes three large above-ground storage tanks farm at located near the northwestern corner of the Portland International Airport. The site receives jet fuel via pipeline from a petroleum facility at Willbridge Cove in Portland. Bulk tank farm development at the Portland International Airport includes a small office building, a maintenance building, extensive piping, filters, and pumps for delivery of pressurized fuel delivered by buried pipeline to hydrants at the airport terminals.

NARR ID: 5735741
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: KTHIESS
Updated Date: 09/23/2015
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Groundwater is shallow in the site vicinity (4 - 6 feet), and flow direction is relatively steep and to the west. Excavation worker exposure to groundwater is primary pathway of concern.

NARR ID: 5735742
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: KTHIESS
Updated Date: 09/23/2015
Decode for NarcdID: Remedial Action
NARR Comments: (3/12/96 GMW/SAS) Partial source soil removals occurred after the January 1992 jet fuel release and the August 1995 UST decommissioning. A contractor estimated in 1992 that approximately 4,500 yards of contaminated soil remained in and around the above-ground tanks. The site has nine perimeter monitoring wells that have been sampled on an irregular basis for TPH/BTEX. The DEQ Leaking Underground Storage Tank Program used log #26-89-0012 to transfer project responsibility to DEQ Cleanup Division for the site as release sources include a UST, ASTs, and a pipeline. DEQ Site Assessment has concluded from its evaluation of the tank farm facility that the owner or operator should characterize soil contamination and evaluate remedial options to prevent further groundwater degradation. Groundwater monitoring should also continue. These further actions should be addressed under VCP guidance. The site is a medium priority, and has been added to the Confirmed Release List.

NARR ID: 5756515
NARR Code: Site History

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

Created By: KTHIESS
Created Date: 12/12/2016
Updated By: KTHIESS
Updated Date: 12/12/2016
Decode for NarcdID: Site History
NARR Comments: 1989 During site constructino activities petroleum hydrocarbons were discovered in an excavation for a canopy footing. Monitoring wells indicate that the contaminatino originated from above ground storage tanks (ASTs), associated piping or past work practices. Release details are unknown. Fuel discovered in soil and groundwater at bulk plant prompted investigation. Summer 1989 - Six monitoring wells installed peripheral to 2-acre bulk plant site to evaluate previous fuel release(s). 1/29/1992 - approx 2000 gallons released from AST valves onto soil inside AST secondary containment area. Soil cleanup and subsurface investgaton followed. pre-1992 - Three additional monitoring wells installed north and northwest of bulk plant faicility to investigate possible pipeline/UST releases. 1995 - One 10,000-gal UST slop tank decommissioned and removed. Partial soil cleanup performed. Additonal monitoring performed. 2012 - Continued subsurface investigatoni peripheral to 10,000 UST excavation, well monitoring, wellhead survey. 2015 - DEQ requests additinoal site characterizatkon to determine nature and extent of affected groundwater downgradient of bulk plant.

NARR ID: 5754437
NARR Code: 1922
Created By: KTHIESS
Created Date: 01/03/2013
Updated By: KTHIESS
Updated Date: 09/23/2015
Decode for NarcdID: Current Site Summary Statement
NARR Comments: At least three releases of jet fuel have occurred at this bulk fuel tank farm from before 1989 to 1995. Contaminated soil was excavatedfrom two areas as removal actions. Improving groundwater quality with time indicates that soil removal action and natural attenution has been effective at reducing contamination sources to groundwater. DEQ has requested additional site information to fill data gaps need to evaluate the site for regulatory closure

Administrative Action:
Action ID: 9520
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/06/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: EXPANDED PRELIMINARY ASSESSMENT
Further Action: 0
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

Cleanup Flag: False
Created Date: 12/12/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 03/12/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 03/12/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Headquarters
Complete Date: 11/18/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 06/08/1996
Rank Value: 0
Cleanup Flag: False

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 03/12/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9502
Region: Northwestern Region
Complete Date: 03/12/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation recommended (RI)
Further Action: Medium
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 03/12/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

AIRCRAFT SERVICE INT'L GROUP (Continued) **S103842746**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 133141
Operation Status: Active
Common Name: Portland Airport Refueling Facility
Yrs of Operation: unknown
Comments: Above-ground tank farm
Updated Date: 03/12/1996
Updated By: gmw
Decode for OpstatID: Active
Operations SIC Id: 196176
SIC Code: 5172
Created By: Not reported
Created Date: 12/17/2002

VCS:
ECS Site ID: 1832
Facility Size: 2 acres
Action: SITE EVALUATION
Start Date: 12/12/2016
End Date: Not reported
Facility Status: Active
Program: VCP
Latitude: 45.5966
Longitude: -122.6125

S111 **ALASKA AIRLINES** **OR CRL** **U001150065**
NNE **7000 NE AIRPORT WAY** **OR ECSI** **N/A**
1/2-1 **PORTLAND, OR 97218** **OR LUST**
0.947 mi. **OR AST**
5000 ft. **Site 2 of 2 in cluster S** **OR ENG CONTROLS**
OR INST CONTROL
Relative: **OR SPILLS**
Higher **OR HAZMAT**
Actual: **OR AIRS**
22 ft. **OR HSIS**
OR NPDES

CRL:
Facility ID: 2118
Location ID: 40591
Status Code: LIS
Facility Status: OPERATION & MAINTENANCE
Lat/Long: 45.5872 / -122.5936

ECSI:
State ID Number: 2118
Brown ID: 0
Study Area: False
Region ID: 2

ALASKA AIRLINES (Continued) **U001150065**

Legislatve ID: 831
Investigation: Listed on the CRL/Inventory
FACA ID: 40591
Further Action: 259
Lat/Long (dms): 45 35 14.00 / -122 35 37.00
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 8
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: ACOATES
Update Date: 06/26/2017
Created Date: 10/23/1997
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Medium-Low
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420
Alias Name: Portland International Airport

Hazardous Release:
Substance ID.: 122012
Haz Release ID: 381281
Qty Released: Not reported
Date Released: Not reported
Update Date: 10/23/1997
Update By: Not reported
Substance Code: ECD275
Substance Name: TOTAL PETROLEUM HYDROCARBONS (TPH)
Substance Abbrev.: Not reported
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 341383
Feature Id: Not reported
Hazard Release Id: 381281
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True

ALASKA AIRLINES (Continued) **U001150065**

Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 13,000 ppm
Last Update By: jmd
Update Date: 10/23/1997
Decode for MediumID: Soil

Substance ID.: 121868
Haz Release ID: 381283
Qty Released: Not reported
Date Released: Not reported
Update Date: 10/23/1997
Update By: Not reported
Substance Code: 91-20-3
Substance Name: NAPHTHALENE
Substance Abbrev.: Not reported
Substance Category ID: 8494
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8494
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317793
Sub Alias Name: MOTH BALLS
Substance Alias ID: 317794
Sub Alias Name: NAPHTHENE
Substance Alias ID: 317795
Sub Alias Name: TAR CAMPHOR
Sampling Result ID: 341384
Feature Id: Not reported
Hazard Release Id: 381283
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 23 ppb
Last Update By: jmd
Update Date: 10/23/1997
Decode for MediumID: Groundwater

Substance ID.: 121192
Haz Release ID: 381284
Qty Released: Not reported

ALASKA AIRLINES (Continued) **U001150065**

Date Released: Not reported
Update Date: 10/23/1997
Update By: Not reported
Substance Code: 205-99-2
Substance Name: BENZO(b)FLUORANTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8477
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8477
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317390
Sub Alias Name: B(b)F
Substance Alias ID: 317391
Sub Alias Name: BENZ(e)ACEPHENANTHRYLENE
Substance Alias ID: 317392
Sub Alias Name: BENZFLUORANTHENE,3,4-
Substance Alias ID: 317393
Sub Alias Name: BENZOFLUORANTHENE,2,3-
Substance Alias ID: 317394
Sub Alias Name: BENZOFLUORANTHENE,3,4-
Sampling Result ID: 341385
Feature Id: Not reported
Hazard Release Id: 381284
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 3.7 ppb
Last Update By: jmd
Update Date: 10/23/1997
Decode for MediumID: Groundwater

Narrative:
NARR ID: 5737260
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: TROICK
Updated Date: 07/05/2005
Decode for NarcdID: Contamination
NARR Comments: Jet fuel contamination associated with fuel hydrants was detected in the Terminal Expansion South construction area. Other sources include a 1972 release of jet fuel near the terminal, and historic runways which contain petroleum and polynuclear aromatic hydrocarbons.

ALASKA AIRLINES (Continued) **U001150065**

NARR ID: 5750695
NARR Code: Disposals
Created By: ACOATES
Created Date: 07/28/2008
Updated By: ACOATES
Updated Date: 07/28/2008
Decode for NarcdID: Disposals
NARR Comments: A total of 15,750 cubic yards of contaminated material was excavated for construction purposes and stockpiled at PDX. On July 29, 1998, DEQ signed a Record of Decision (ROD) for managing the contaminated soil. The selected remedy was to stockpile the soil, cover with one foot of clean fill, seed, implement a management plan for monitoring and maintenance of the stockpile, and identify the stockpile (also know as the Berm) on an Airport Layout Plan.

NARR ID: 5737261
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: TROICK
Updated Date: 07/05/2005
Decode for NarcdID: Data Sources
NARR Comments: Remedial Investigation Report Terminal Expansion South Phase I, Portland International Airport, November 9, 1998; Remedial Investigation Report, Terminal Expansion South Phase II and III, Portland International Airport, March 5, 2001. These documents together comprise a preliminary assessment equivalent (PAE). Revised Feasibility Study - Soil Terminal Expansion South Phase II and III, August, 2001; Focused Site Characterization Report Terminal Expansion South Phase III, January 2002. Final First Quarter 2004 Groundwater Monitoring Report and Risk Evaluation, March 28, 2005.

NARR ID: 5737262
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Location
NARR Comments: This site consists of three Port of Portland projects: TES Phases I, II, and III. Each comprises a different area within the overall site boundary. The general TES site area includes Concourse C and adjacent ramp areas to the north, south, and west.

NARR ID: 5737263
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: ACOATES
Updated Date: 07/28/2008
Decode for NarcdID: Remedial Action
NARR Comments: (7/11/05 TER/VCP) In September 1996, the Port of Portland joined the Voluntary Cleanup Program to obtain oversight of investigation and cleanup associated with the Terminal Expansion South (TES) construction project at Portland International Airport. Jet fuel contamination associated with fuel hydrants and fuel spills has been detected in the TES construction area. Former runways and taxiways

ALASKA AIRLINES (Continued) **U001150065**

also have petroleum contamination, which is likely related to past surface oiling or dust suppression. Petroleum products contain potential carcinogens and other toxic substances including polynuclear aromatic hydrocarbons (PAHs). The primary exposure route of concern is direct contact for workers considering both current construction work and future site activities. PAH-contaminated soil from beneath a former taxiway was excavated as part of TES I construction. A DEQ Record of Decision (ROD) was completed in July 1998 for the management of that soil in a berm on airport property, northwest of the active runways. A ROD to address residual jet fuel contamination at TES Phase I, near Concourse C, was signed by DEQ in December 1999. The TES I ROD requires maintenance of the existing asphaltic concrete surface to prevent exposure to underlying petroleum-contaminated soils. In 2001, the Port finalized a Remedial Investigation and Risk Assessment (RI/RA) report for TES Phase II/III, related to the completion of Concourse C improvements. The Port completed a Feasibility Study for TES Phase II/III soil in 2002, and DEQ finalized the Phase II/III ROD in June 2002. Similar to TES Phase I, the Phase II/III ROD requires maintenance of the airfield tarmac and adjacent buildings as a cap to prevent exposure to site workers. Groundwater investigation at the TES sites was initially limited to one-time push probe sampling. Six groundwater monitoring wells were installed on the south side of Concourse C at the site in May 2001. Additional wells were installed in 2003 as part of TES Phase III construction to better define the extent of groundwater contamination. In August 2004, the Port submitted a beneficial water use determination (BWUD) for the airport vicinity. The Port has completed one year of groundwater monitoring for all site wells to define the nature and extent of groundwater contamination. DEQ is reviewing an evaluation risk from groundwater contamination at TES, which indicates that contamination in groundwater is below concentrations of concern. DEQ will issue a no further action determination for groundwater. The Port updated its Airport Layout Plan in February 2006 as part of the institutional control for the soil remedy.

Site Control:

Site Control #:	399
Control Number:	35
Begin Date:	12/17/1999
End Date:	Not reported
Frequency Of Review:	60
Last Reviewed By:	A. Coates, DEQ
Last Reviewed Date:	07/29/2010
Last Update By:	GWISTAR
Last Updated Date:	12/29/2016
Site Comment:	The airport tarmac (concrete and asphalt) and terminal buildings prevent exposure to underlying contaminated soil for TES Phases I, II, and III.

Site Control #:	400
Control Number:	17
Begin Date:	08/01/2002
End Date:	Not reported
Frequency Of Review:	12
Last Reviewed By:	Anna Coates
Last Reviewed Date:	07/29/2010
Last Update By:	GWISTAR

ALASKA AIRLINES (Continued) **U001150065**

Last Updated Date: 12/29/2016
Site Comment: Treated Sub-grade berm of petroleum and polynuclear aromatic hydrocarbons. The soil berm is covered by clean material, vegetated, and surrounded by a fence preventing access and exposure to people. The Port of Portland submits annual inspection and maintenance reports for the berm.

Site Control #: 1117
Control Number: 17
Begin Date: 07/24/1998
End Date: Not reported
Frequency Of Review: 12
Last Reviewed By: July 2016-June 2017
Last Reviewed Date: 06/26/2017
Last Update By: ACOATES
Last Updated Date: 06/26/2017
Site Comment: Monthly inspections conducted to document the status of the Berm. No failures of the soil cover. Vegetation cover remains well established. Shallow limited mowing scars and vole activity noted.

Administrative Action:
Action ID: 9411
Region: Northwestern Region
Complete Date: 07/28/2008
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/28/2008
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: No Further Action (Conditional)
Further Action: 0
Comments: Not reported

Action ID: 9466
Region: Northwestern Region
Complete Date: 07/29/2010
Rank Value: Not reported
Cleanup Flag: True
Created Date: 07/29/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Periodic Review
Further Action: 0
Comments: Not reported

Action ID: 9450
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/26/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action

ALASKA AIRLINES (Continued) **U001150065**

Action Code Flag: False
Action: OPERATION and MAINTENANCE
Further Action: Medium-Low
Comments: Not reported

Action ID: 9438
Region: Northwestern Region
Complete Date: 03/05/2002
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9439
Region: Northwestern Region
Complete Date: 03/05/2002
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 03/05/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9484
Region: Northwestern Region
Complete Date: 01/11/2006
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False

ALASKA AIRLINES (Continued) **U001150065**

Action: REMEDIAL INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9429
Region: Northwestern Region
Complete Date: 08/27/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 12/14/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 12/14/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9494
Region: Northwestern Region
Complete Date: 12/17/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RECORD OF DECISION

ALASKA AIRLINES (Continued) **U001150065**

Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 06/14/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9499
Region: Northwestern Region
Complete Date: 06/14/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9484
Region: Northwestern Region
Complete Date: 08/27/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: Not reported
Comments: Not reported

Action ID: 9440
Region: Northwestern Region
Complete Date: 08/24/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Letter Agreement
Further Action: Not reported

ALASKA AIRLINES (Continued) **U001150065**

Comments: Not reported

Action ID: 9429
Region: Northwestern Region
Complete Date: 06/24/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: Not reported
Comments: Not reported

Action ID: 9494
Region: Northwestern Region
Complete Date: 07/29/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RECORD OF DECISION
Further Action: Not reported
Comments: Not reported

Action ID: 9450
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: OPERATION and MAINTENANCE
Further Action: 0
Comments: Not reported

Action ID: 9429
Region: Northwestern Region
Complete Date: 08/24/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: Not reported
Comments: Not reported

ALASKA AIRLINES (Continued) **U001150065**

Action ID: 9469
Region: Northwestern Region
Complete Date: 06/01/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Northwestern Region
Complete Date: 10/23/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9484
Region: Northwestern Region
Complete Date: 08/24/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: Not reported
Comments: Not reported

Action ID: 9440
Region: Northwestern Region
Complete Date: 08/22/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Letter Agreement
Further Action: Not reported
Comments: Not reported

Action ID: 9409

ALASKA AIRLINES (Continued) **U001150065**

Region: Northwestern Region
Complete Date: 08/11/2004
Rank Value: Not reported
Cleanup Flag: True
Created Date: 07/05/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Beneficial Water Use Assessment
Further Action: 0
Comments: Not reported

Action ID: 9422
Region: Northwestern Region
Complete Date: 02/21/2005
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/05/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Engineering Control
Further Action: 0
Comments: Not reported

Action ID: 9494
Region: Northwestern Region
Complete Date: 06/28/2002
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/05/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RECORD OF DECISION
Further Action: 0
Comments: Not reported

Action ID: 9463
Region: Northwestern Region
Complete Date: 01/11/2006
Rank Value: Not reported
Cleanup Flag: True
Created Date: 11/23/2005
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Partial No Further Action
Further Action: 0
Comments: Not reported

Action ID: 9469
Region: Northwestern Region

ALASKA AIRLINES (Continued) **U001150065**

Complete Date: 07/28/2008
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/11/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 135088
Operation Status: Active
Common Name: Portland International Airport
Yrs of Operation: Not reported
Comments: Not reported
Updated Date: 07/05/2005
Updated By: TROICK
Decode for OpstatID: Active

State ID Number: 273
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 832
Investigation: Suspect
FACA ID: 1862
Further Action: 260
Lat/Long (dms): 45 35 21.00 / -122 35 22.00
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 8
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 02/26/2009
Created Date: 08/17/1988
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Low
Decode For Investstat: Suspect
Decode For Legislative: Owner, operator or other party under state or federal authority
Alias Name: Port of Portland - PDX

Hazardous Release:
Substance ID.: 121639
Haz Release ID: 380377
Qty Released: unknown

ALASKA AIRLINES (Continued) **U001150065**

Date Released: unknown
Update Date: 04/03/1996
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 342039
Feature Id: Not reported
Hazard Release Id: 380377
Medium: 703
Substance Abbrev.: Not reported
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: .00
Max Concentration: 2700.00
Sample Comment: 2,700 ppm
Last Update By: kpd
Update Date: 03/04/1996
Decode for MediumID: Soil

Substance ID.: 121994
Haz Release ID: 383046
Qty Released: unknown
Date Released: unknown
Update Date: 04/03/1996
Update By: Not reported
Substance Code: ECD222
Substance Name: PETROLEUM
Substance Abbrev.: Not reported
Substance Category ID: 8533
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8533
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 346136

ALASKA AIRLINES (Continued) **U001150065**

Feature Id: Not reported
Hazard Release Id: 383046
Medium: 703
Substance Abbrev.: Not reported
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: .00
Max Concentration: 13400.00
Sample Comment: 13,400 ppm
Last Update By: kpd
Update Date: 03/04/1996
Decode for MediumID: Soil

Narrative:

NARR ID: 5727916
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: A system of storm drains has been constructed beneath Portland International Airport (PDX) to remove stormwater. The drains discharge to vegetated canals that lead to the Columbia Slough. On the western part of the site, surface impoundments with skimmers are used to remove contaminants before the water reaches the slough; surface water from the eastern part of the site reaches the slough without treatment. The drainage canals receive contaminants when fuel spills on the tarmac are washed into the storm drains. Seven fuel spills of more than 40 gallons each are known to have occurred on the tarmac from 1983 to 1991; other earlier fuel spills are likely. In June 1987, the East and North drainage canals were sampled and found to contain high levels of lead and petroleum. With DEQ's approval, PDX decided to excavate 230 feet of the East canal and the entire North canal. All visibly contaminated sediments and soils (approximately 539 cubic yards worth) were excavated and disposed of off-site. It is not known whether confirmation samples were taken. Additionally, at least 32 surface and underground storage tanks containing petroleum products are known to have been installed at PDX. Six of the underground tanks have been removed, and no contamination above DEQ standards was left at any of the removal sites.

NARR ID: 5727917
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: solvents, pesticides, paint, propane, gasoline, jet fuel, kerosene

NARR ID: 5727918

ALASKA AIRLINES (Continued) **U001150065**

NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Location
NARR Comments: Excludes property leased or formerly leased by the Oregon Air National Guard.

NARR ID: 5727919
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Fuel spills are washed into storm drains which discharge to a network of drainage ditches. Spills are known to have occurred from 1983 to 1991, and have likely occurred since 1940.

NARR ID: 5727920
NARR Code: Media Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Media Contamination
NARR Comments: The above samples were taken in drainage ditches prior to the excavation of contaminants. However, there is no information as to whether confirmation sampling was performed.

NARR ID: 5727921
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: The site is located between the Columbia River and the Columbia Slough. Prior to the airport's construction, the site was a mixture of farmlands and wetlands. Three areas of wetlands still surround the site, and the drainage ditches have been classified as wetlands. The site is technically located in the Columbia River floodplain; however a series of dikes along the Columbia shore protect the site from all but the largest (1,000 year) floods. The top two to five feet of soils at the site are generally sand and silt loams. Directly beneath these soils lie sand and gravel aquifers, which are connected to the South Shore wellfield aquifers upgradient of the site. Although the aquifers are connected, the Columbia Slough should act as a barrier to any contaminant migration.

NARR ID: 5727922
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002

ALASKA AIRLINES (Continued) **U001150065**

Decode for NarcdID: Remedial Action
NARR Comments: PTI Environmental Services completed a Preliminary Assessment (PA) on the site for DEQ in April 1991. After reviewing background information on the site, PTI recommended an expanded Preliminary Assessment (XPA) <quot>to ascertain the nature and extent of contamination at suspected release sites where sampling has not been conducted.<quot> DEQ agrees with PTI's recommendation. (See also ECSI #704 and #1065 for more information about potential contamination at the site).

NARR ID: 5728493
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: Contaminated sediments in ditches and contaminated surface water pose threats to wildlife in the area. Groundwater may be contaminated - a number of wells in the area withdraw drinking water from aquifers near the site.

Administrative Action:
Action ID: 9519
Region: Northwestern Region
Complete Date: 03/07/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: Not reported
Comments: Not reported

Action ID: 9426
Region: Headquarters
Complete Date: 03/17/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Not reported
Complete Date: 02/09/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Not reported

ALASKA AIRLINES (Continued) **U001150065**

Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 01/28/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 01/28/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Headquarters
Complete Date: 05/28/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters

ALASKA AIRLINES (Continued) **U001150065**

Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9499
Region: Headquarters
Complete Date: 05/28/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Headquarters
Complete Date: 12/14/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Headquarters
Complete Date: 12/14/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9445
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action

ALASKA AIRLINES (Continued) **U001150065**

Action Code Flag: False
Action: Responsible party notified re 11/88 Inventory listing
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Headquarters
Complete Date: 05/21/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9510
Region: Headquarters
Complete Date: 03/17/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Expanded Preliminary Assessment recommended (XPA)
Further Action: Low
Comments: Not reported

Action ID: 9456
Region: Headquarters
Complete Date: 04/01/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 131696
Operation Status: Active
Common Name: Portland International Airport
Yrs of Operation: 1940 to present
Comments: Airport
Updated Date: 03/04/1996
Updated By: kpd
Decode for OpstatID: Active
Operations SIC Id: 195342
SIC Code: 4581

ALASKA AIRLINES (Continued) **U001150065**

Created By: Not reported
Created Date: 12/17/2002

State ID Number: 4739
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 831
Investigation: No Further Action
FACA ID: 117327
Further Action: 0
Lat/Long (dms): 45 35 15.40 / -122 35 33.40
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 2.00
Range Zone: E
Section Coord: 8
Qtr Section: Not reported
Tax Lots: Not reported
Size: Not reported
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 02/02/2016
Created Date: 12/14/2006
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420

Narrative:

NARR ID: 5752625
NARR Code: Contamination
Created By: ACOATES
Created Date: 12/20/2010
Updated By: ACOATES
Updated Date: 12/20/2010
Decode for NarcdID: Contamination
NARR Comments: Jet Fuel

NARR ID: 5748961
NARR Code: Hazardous Substance/Waste Types
Created By: GWISTAR
Created Date: 01/29/2007
Updated By: GWISTAR
Updated Date: 01/29/2007
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Jet fuel and constituents, including free product, are the contaminants noted at the site.

NARR ID: 5752626
NARR Code: Site Location
Created By: ACOATES

ALASKA AIRLINES (Continued) **U001150065**

Created Date: 12/20/2010
Updated By: ACOATES
Updated Date: 12/20/2010
Decode for NarcdID: Site Location
NARR Comments: Port of Portland

NARR ID: 5755855
NARR Code: Remedial Action
Created By: ACOATES
Created Date: 10/22/2015
Updated By: ACOATES
Updated Date: 10/22/2015
Decode for NarcdID: Remedial Action
NARR Comments: Manual removal of LNAPL, CMMP, Airport Layout Plan.

NARR ID: 5752627
NARR Code: Health Threats
Created By: ACOATES
Created Date: 12/20/2010
Updated By: GWISTAR
Updated Date: 02/02/2016
Decode for NarcdID: Health Threats
NARR Comments: Direct contact with LNAPL was the initial threat DEQ noted in 2010; subsequent remedial action and long-term-controls have eliminated this as a health threat.

NARR ID: 5755976
NARR Code: 1922
Created By: GWISTAR
Created Date: 02/02/2016
Updated By: GWISTAR
Updated Date: 02/02/2016
Decode for NarcdID: Current Site Summary Statement
NARR Comments: [Feb. 2016] The Port of Portland has completed to DEQ's satisfaction all remedial actions required under the Consent Order with DEQ. Therefore, DEQ has issued a Certificate of Completion of the Order and a conditional no-further-action decision. This requires a long-term Airport Layout Plan, designed to ensure protective conditions for airport staff and construction workers (including utility workers).

Site Control:
Site Control #: 982
Control Number: 6
Begin Date: 01/22/2016
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: Anna Coates
Last Reviewed Date: Not reported
Last Update By: ACOATES
Last Updated Date: 02/01/2016
Site Comment: Airport Layout Plan maintained by Port of Portland to ensure protective conditions for airport workers and construction workers (including utility workers).

Site Control #: 983
Control Number: 5
Begin Date: 01/22/2016

ALASKA AIRLINES (Continued) **U001150065**

End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: Anna Coates
Last Reviewed Date: Not reported
Last Update By: ACOATES
Last Updated Date: 02/01/2016
Site Comment: Contaminated Media Management Plan in effect as part of Airport Layout Plan.

Administrative Action:
Action ID: 9484
Region: Northwestern Region
Complete Date: 06/15/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/15/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9429
Region: Northwestern Region
Complete Date: 03/01/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/15/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: 0
Comments: Not reported

Action ID: 9473
Region: Northwestern Region
Complete Date: 03/26/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/03/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL DESIGN
Further Action: 0
Comments: Not reported

Action ID: 9469
Region: Northwestern Region
Complete Date: 10/22/2015
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/26/2013

ALASKA AIRLINES (Continued) **U001150065**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: 0
Comments: Not reported

Action ID: 9414
Region: Northwestern Region
Complete Date: 01/22/2016
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/22/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Certification of Completion
Further Action: 0
Comments: Not reported

Action ID: 9411
Region: Northwestern Region
Complete Date: 01/22/2016
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/01/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: No Further Action (Conditional)
Further Action: 0
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: 12/14/2006
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/14/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9520
Region: Northwestern Region
Complete Date: 01/15/2008
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/14/2006
Decode for AgencyID: Department of Environmental Quality

ALASKA AIRLINES (Continued) **U001150065**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: EXPANDED PRELIMINARY ASSESSMENT
Further Action: 0
Comments: Not reported

LUST:
Region: North Western Region
Facility ID: 26-17-0599
Cleanup Received Date: 05/26/2017
Cleanup Start Date: Not reported
Cleanup Complete Date: 07/27/2017
Decode for Region: North West Region

AST:
Facility Id: 033407
Hazardous Substance: AIRCRAFT DEICING FLUID
Reporting Quantities: 10,000-49,999
Quantity Units: GALLONS
Physical State: LIQUID
Storage 1: OTHER
Storage 2: ABOVEGROUND TANK
County: Not reported
Owner-Operator Name: Not reported
Direct Site Phone: Not reported
Report Class: Not reported
Report Year: Not reported
Is Poisonous Gas: Not reported
Is Poisonous Material: Not reported
Is Biological Hazard: Not reported
Is Radioactive Material: Not reported
Is Explosive: Not reported
Status: Inactive

Facility Id: 092310
Hazardous Substance: GASOLINE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Below ground tank
County: MULTNOMAH
Owner-Operator Name: Sheryl
Direct Site Phone: 5035287901
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Enginering Control:
Site Control Sequence #: 399
Site Id: 2118

ALASKA AIRLINES (Continued) **U001150065**

Control Sequence #: 35
Begin Date: 12/17/1999
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: A. Coates, DEQ
Last Review Date: 07/29/2010
Last Updated By: GWISTAR
Last Updated Date: 12/29/2016
Group Sequence #: 9
Control Code: BD
Control Description: Building(s)
FK Type Code: 2
Group Code: SB
Group Description: Surface Barriers
Type Code: E
Type Description: Engineering
Comments: The airport tarmac (concrete and asphalt) and terminal buildings prevent exposure to underlying contaminated soil for TES Phases I, II, and III.

Site Control Sequence #: 400
Site Id: 2118
Control Sequence #: 17
Begin Date: 08/01/2002
End Date: Not reported
Frequency Of Review: 12
Last Reviewed By: Anna Coates
Last Review Date: 07/29/2010
Last Updated By: GWISTAR
Last Updated Date: 12/29/2016
Group Sequence #: 5
Control Code: BI
Control Description: Berms or impoundments
FK Type Code: 2
Group Code: CIP
Group Description: Contamination Contained in Place
Type Code: E
Type Description: Engineering
Comments: Treated Sub-grade berm of petroleum and polynuclear aromatic hydrocarbons. The soil berm is covered by clean material, vegetated, and surrounded by a fence preventing access and exposure to people. The Port of Portland submits annual inspection and maintenance reports for the berm.

Site Control Sequence #: 1117
Site Id: 2118
Control Sequence #: 17
Begin Date: 07/24/1998
End Date: Not reported
Frequency Of Review: 12
Last Reviewed By: July 2016-June 2017
Last Review Date: 06/26/2017
Last Updated By: ACOATES
Last Updated Date: 06/26/2017
Group Sequence #: 5
Control Code: BI
Control Description: Berms or impoundments

ALASKA AIRLINES (Continued) **U001150065**

FK Type Code: 2
Group Code: CIP
Group Description: Contamination Contained in Place
Type Code: E
Type Description: Engineering
Comments: Monthly inspections conducted to document the status of the Berm. No failures of the soil cover. Vegetation cover remains well established. Shallow limited mowing scars and vole activity noted.

Institutional Control:
Site Control Sequence #: 982
Site Id: 4739
Control Sequence #: 6
Begin Date: 01/22/2016
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: Anna Coates
Last Review Date: Not reported
Last Updated By: ACOATES
Last Updated Date: 02/01/2016
Group Sequence #: 2
Control Code: USO
Control Description: Use Restriction Other
FK Type Code: 1
Group Code: PR
Group Description: Proprietary
Type Code: I
Type Description: Institutional
Comments: Airport Layout Plan maintained by Port of Portland to ensure protective conditions for airport workers and construction workers (including utility workers).

Site Control Sequence #: 983
Site Id: 4739
Control Sequence #: 5
Begin Date: 01/22/2016
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: Anna Coates
Last Review Date: Not reported
Last Updated By: ACOATES
Last Updated Date: 02/01/2016
Group Sequence #: 2
Control Code: USL
Control Description: Use Restriction Land
FK Type Code: 1
Group Code: PR
Group Description: Proprietary
Type Code: I
Type Description: Institutional
Comments: Contaminated Media Management Plan in effect as part of Airport Layout Plan.

OR SPILLS:
Facility ID: 2012-0111
Incident Status: Archive

ALASKA AIRLINES (Continued) **U001150065**

Material: Diesel fuel
Quantity: 1
Unit of Measure: Gallons
Release Date: 01/17/2012
Description: United Airlines reporting the spill of 1 gallon of diesel to the ground. 1/2 quart made it to the storm drain. Pads and a vac truck were used to cleanup. The spill was caused by a ASIG who was fueling equipment.
Lat/Long: 45.5893 / -122.5925
Source: Business
Media: On pavement/asphalt - not direct on soil
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Facility ID: 2016-0458
Incident Status: Closed
Material: Mercury
Quantity: Unknown
Unit of Measure: UNK
Release Date: 02/21/2016
Description: NRC report (#1141022) of Mercury discovered in front of Alaska Airlines aircraft (ID #N795AS) at PDX. Unknown source aircraft removed from service for cleanup no known human or environmental impact.
Lat/Long: 45.588356 / -122.58925
Source: Unknown
Media: None
Responsible Company: Alaska Airlines
Responsible Address: PO Box 68900 Mailcode SEAZE
Responsible City,St,Zip: Seattle, WA 98168

Facility ID: 2007-2892
Incident Status: Archive
Material: Not reported
Quantity: 2
Unit of Measure: Gallons
Release Date: 12/18/2007
Description: Hydraulic oil spill at Port of Portland. Less than 2 gallons spilled to pavement and storm drain. Booms and pads have been applied.
Lat/Long: 45.5893 / -122.5925
Source: Heavy Equipment
Media: Suspected, unknown, or no discharge
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Facility ID: 2007-2892
Incident Status: Archive
Material: Not reported
Quantity: 2
Unit of Measure: Gallons
Release Date: 12/18/2007
Description: Hydraulic oil spill at Port of Portland. Less than 2 gallons spilled to pavement and storm drain. Booms and pads have been applied.
Lat/Long: 45.5893 / -122.5925
Source: Heavy Equipment
Media: On pavement/asphalt - not direct on soil

ALASKA AIRLINES (Continued) **U001150065**

Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Facility ID: 2007-2883
Incident Status: Archive
Material: Diesel fuel
Quantity: 3
Unit of Measure: Gallons
Release Date: 12/18/2007
Description: Nick Atwell 503-807-4585 reported a 3 gallon diesel spill to pavement at Concourse C, Southwest Airlines, PDX 7000 NE Airport Way discovered at 0900 this morning, could have happened last night. The vehicle responsible has not been located at this time. Diesel was spilled onto pavement, into drain with separator, organic dispersant spray was applied, booms were placed at outfall to river as a precaution, no sheen noted.
Lat/Long: 45.5893 / -122.5925
Source: Motor Vehicle - Commercial
Media: On pavement/asphalt - not direct on soil
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Facility ID: 2007-0949
Incident Status: Archive
Material: Kerosene and jet fuel
Quantity: 4
Unit of Measure: Gallons
Release Date: 05/09/2007
Description: Port of Portland discovered jet fuel in one of their storm water vaults. All product is contained in the vault and the estimated quantity is 3-4 gallons. The have contracted Terra Hydra to clean out the vault.
Lat/Long: 45.589 / -122.5931
Source: Aircraft
Media: Suspected, unknown, or no discharge
Responsible Company: Port of Portland
Responsible Address: 6440 NE 82nd Ave
Responsible City,St,Zip: Portland, OR 97220-1678

Facility ID: 2007-0949
Incident Status: Archive
Material: Kerosene and jet fuel
Quantity: 4
Unit of Measure: Gallons
Release Date: 05/09/2007
Description: Port of Portland discovered jet fuel in one of their storm water vaults. All product is contained in the vault and the estimated quantity is 3-4 gallons. The have contracted Terra Hydra to clean out the vault.
Lat/Long: 45.589 / -122.5931
Source: Aircraft
Media: On pavement/asphalt - not direct on soil
Responsible Company: Port of Portland
Responsible Address: 6440 NE 82nd Ave
Responsible City,St,Zip: Portland, OR 97220-1678

ALASKA AIRLINES (Continued) **U001150065**

Facility ID: 2011-1317
Incident Status: Archive
Material: Not reported
Quantity: 1
Unit of Measure: Gallons
Release Date: 06/01/2011
Description: Hydraulic line on dump truck failed. Less than 1 gallon released before line was plugged. Raining at time of release, some oil made it to drainage basin #5. Outfall boomed, observed sheen behind boom.
Lat/Long: 45.5893 / -122.5925
Source: Heavy Equipment
Media: On pavement/asphalt - not direct on soil
Responsible Company: Kodiak Pacific
Responsible Address: 10940 SW Cutter Rd
Responsible City,St,Zip: Sherwood, OR 97140

Facility ID: 2011-1317
Incident Status: Archive
Material: Not reported
Quantity: 1
Unit of Measure: Gallons
Release Date: 06/01/2011
Description: Hydraulic line on dump truck failed. Less than 1 gallon released before line was plugged. Raining at time of release, some oil made it to drainage basin #5. Outfall boomed, observed sheen behind boom.
Lat/Long: 45.5893 / -122.5925
Source: Heavy Equipment
Media: Not reported
Responsible Company: Kodiak Pacific
Responsible Address: 10940 SW Cutter Rd
Responsible City,St,Zip: Sherwood, OR 97140

Facility ID: 1999-0362
Incident Status: Archive
Material: Industrial fuel oil, ship bunker or intermediate fuel oils, etc.
Quantity: 350
Unit of Measure: Gallons
Release Date: 03/09/1999
Description: Fuel cap lelt open in opposing tank while fueling aircraft and 350 gallons was pumped to asphalt- Jet-A (kerasene-repined)
Lat/Long: 45.589 / -122.5931
Source: Other
Media: On pavement/asphalt - not direct on soil
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Facility ID: 2017-3267
Incident Status: Closed
Material: Oil - Jet A
Quantity: 10
Unit of Measure: Gallons
Release Date: 11/14/2017
Description: A private company reported the release of up to 50 GAL of jet fuel to the pavement on the ramp service. Horizon Air advised that this occurred at the Portland International Airport. A contracted employee from the vendor, Menzies Aviation, was exposed to the fuel - no

ALASKA AIRLINES (Continued) **U001150065**

injury. It is unknown how much exposure occurred. The name of the employee is not known at this time. Portland International Airport Fire and Portland Airport Fuel cleanup team responded for cleanup.
Lat/Long: 45.587608 / -122.60169
Source: Aircraft
Media: Pavement
Responsible Company: Alaska Airlines
Responsible Address: PO Box 68900 Mailcode SEAZE
Responsible City,St,Zip: Seattle, WA 98168

Facility ID: 2008-3091
Incident Status: Archive
Material: Not reported
Quantity: 1000
Unit of Measure: Gallons
Release Date: 12/28/2008
Description: port of PDX is exceeding NPDES permit on deicing collection system. Port is claiming an upset; overflow going to Columbia Slough.
Lat/Long: 45.5893 / -122.5925
Source: Aircraft
Media: Not reported
Responsible Company: Port of Portland
Responsible Address: 7000 NE Airport Way
Responsible City,St,Zip: Portland, OR 97218-1009

Facility ID: 2008-2587
Incident Status: Archive
Material: Other oil
Quantity: 500
Unit of Measure: Gallons
Release Date: 10/29/2008
Description: Fuel truck rear-ended a maintenance truck spilling 500 gallons of Jet-A fuel to the asphalt. The material is contained and absorbents have been applied. No waterways impacted.
Lat/Long: 45.589 / -122.5931
Source: Business
Media: Suspected, unknown, or no discharge
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Facility ID: 2008-2587
Incident Status: Archive
Material: Other oil
Quantity: 500
Unit of Measure: Gallons
Release Date: 10/29/2008
Description: Fuel truck rear-ended a maintenance truck spilling 500 gallons of Jet-A fuel to the asphalt. The material is contained and absorbents have been applied. No waterways impacted.
Lat/Long: 45.589 / -122.5931
Source: Business
Media: On pavement/asphalt - not direct on soil
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

ALASKA AIRLINES (Continued) **U001150065**

Facility ID: 2008-2587
Incident Status: Archive
Material: Other oil
Quantity: 500
Unit of Measure: Gallons
Release Date: 10/29/2008
Description: Fuel truck rear-ended a maintenance truck spilling 500 gallons of Jet-A fuel to the asphalt. The material is contained and absorbents have been applied. No waterways impacted.
Lat/Long: 45.589 / -122.5931
Source: Business
Media: Coding for the PS/BC Oil Spill Database
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

HAZMAT:

Responsble Party:	Not reported
RP Company:	ALASKA AIRLINES
RP Address:	7000 NE AIRPORT WAY
RP City,St,Zip:	PORTLAND 97000
Facility ID:	880237
OERS Number:	Not reported
Dept Rsp:	GRESHAM FIRE & EMERG SRVCS
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	GRESHAM FIRE & EMERG SRVCS
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	5036692505
Osfm Incident Report Number:	880237
Dept. Responding:	GRESHAM FIRE & EMERG SRVCS
Person Making Report:	LEN MALMQUIST
Title:	FM
Agency:	GRESHAM FIRE & EMERG SRVCS
Phone:	5036692505
Date Of Incident:	01/22/1988
Call Time:	12:00:00 AM
In Route:	12:00:00 AM
Arrival:	8:00:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	10:25:00 PM
Dist Of Incident:	GRESHAM FIRE & EMERG SRVCS
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	Not reported
Agency Report Number:	Not reported
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Not reported
Area Type:	Not reported
Responsible Party(Ies):	Not reported
Company:	ALASKA AIRLINES
Respcontact:	Not reported
Address:	7000 NE AIRPORT WAY
Resp City:	PORTLAND
Resp State:	Not reported
Resp ZipCode:	97000
Phone:	Not reported
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	Normal Operation
Cause:	Unknown
Vehicle And Cargo:	0
Fixed Property:	0
Total Loss:	$0.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Latitude: Not reported
Longitude: Not reported
Hazmat Disposition: Not reported

Chemical:
Chemical Info: 5214
Chemical Id: 35430
Incident Id: 880237
Chemical Name: UNKNOWN CHEMICAL
UNNA: Not reported
Amount At Risk: 0
Amount Released: 0
Amount Measured: 0
Biological: False
Radiological: False

Chemical Id: 35430
Chemical Name: UNKNOWN CHEMICAL
Hazardous Ingredient: UNKNOWN CHEMICAL
Hazardous Class 1: 9.0
Hazardous Class 2: Not reported
Hazardous Rank: 2
Case Number: Not reported
UNNA Number: Not reported
EPA Pest Reg: Not reported
EHA Chem: Not reported
PSM Chem: Not reported
CAA 112R Chem: Not reported

Method:
Method Used Id: 1222
Incident Id: 880237
Identity Method: 6

Released:
Release Behavior Id: 3475
Incident Id: 880237
Behavior: 4

Narrative:
Narrative Id: 2343
Incident Id: 880237
Incident Narrative: RESPONDED TO REPORT OF MILKY LOOKING, STICKY SUBSTANCE FOUND ON FLOOR OF CARGO BAY OF 727 THAT WAS APPARENTLY CAUSING BAGGAGE HANDLERS TO BECOME ILL (NAUSEA). COULD NOT ID. TENTATIVE ID AT DEQ ORGANIC LAB REVEALED POSSIBLE COLA SYRUP. FOUR WORKERS SUFF
Incident Date: 1/22/1988

Responsble Party: TRANS WORLD AIRLINES
RP Company: Not reported
RP Address: 7000 NE AIRPORT WY
RP City,St,Zip: PORTLAND, OR
Facility ID: 990365
OERS Number: Not reported
Dept Rsp: HAZMAT TEAM PORTLAND - 06

ALASKA AIRLINES (Continued) **U001150065**

Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	PORTLAND BUREAU OF F&R&EMS
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	5038233856
Osfm Incident Report Number:	990365
Dept. Responding:	HAZMAT TEAM PORTLAND - 06
Person Making Report:	LT BRIAN COFFEY
Title:	LT
Agency:	HAZMAT TEAM PORTLAND - 06
Phone:	5038233856
Date Of Incident:	12/03/1999
Call Time:	5:08:00 AM
In Route:	5:10:00 AM
Arrival:	3:28:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	8:08:00 AM
Dist Of Incident:	PORTLAND BUREAU OF F&R&EMS
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	HM06

ALASKA AIRLINES (Continued) **U001150065**

Agency Report Number:	99-52622
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Private Land
Area Type:	Commercial
Responsible Party(Ies):	TRANS WORLD AIRLINES
Company:	Not reported
Respcontact:	Not reported
Address:	7000 NE AIRPORT WY
Resp City:	PORTLAND
Resp State:	OR
Resp ZipCode:	Not reported
Phone:	8002212000
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	False
Operation Performed:	Normal Operation
Cause:	Unknown
Vehicle And Cargo:	0
Fixed Property:	0
Total Loss:	$0.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	8742
Chemical Id:	35430
Incident Id:	990365
Chemical Name:	UNKNOWN CHEMICAL
UNNA:	Not reported
Amount At Risk:	0
Amount Released:	0
Amount Measured:	0
Biological:	False
Radiological:	False

Chemical Id:	35430
Chemical Name:	UNKNOWN CHEMICAL
Hazardous Ingredient:	UNKNOWN CHEMICAL
Hazardous Class 1:	9.0
Hazardous Class 2:	Not reported
Hazardous Rank:	2
Case Number:	Not reported
UNNA Number:	Not reported
EPA Pest Reg:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

EHA Chem: Not reported
PSM Chem: Not reported
CAA 112R Chem: Not reported

Narrative:
Narrative Id: 7632
Incident Id: 990365
Incident Narrative: HM 41 WAS CALLED TO PDX TO POSSIBLY IDENTIFY AN ODOR FROM AN AIRPLANE CARGO HOLD/ POSSIBLE RADIOACTIVE MATERIALS INVOLVED. AN ENTRY TEAM MONITORED THE ATMOSPHERE AND SEVERAL SUSPECTED PACKAGES AND FOUND NEGATIVE RESULTS. THE PACKAGES WERE INTACT AND THERE WAS NO RELEASE OF ANY HAZARDOUS MATERIALS.
Incident Date: 12/3/1999

Responsble Party: GARY BANKSTON
RP Company: ALASKA AIRLINES
RP Address: PORTLAND INTL AIRPRT
RP City,St,Zip: PORTLAND 97218
Facility ID: 870066
OERS Number: Not reported
Dept Rsp: PORTLAND BUREAU OF F&R&EMS
Narrative: Not reported
Property Loss: Not reported
Amount Released: Not reported
Service County: Not reported
Service Name: Not reported
Incident Type: Not reported
Civilian Casualty Activity: Not reported
Chemical Name: Not reported
Hazmat Area Affected: Not reported
Hazmat Area Evacuated: Not reported
Hazmat Container Type: Not reported
Hazmat Physical State Released: Not reported
Hazmat Released Into: Not reported
Hazmat Released Volume Units: Not reported
Hazmat Released Weight Units: Not reported
Hazmat Released From: Not reported
Hazmat Area Affected Measurement: Not reported
Hazmat No. of People Evacuated: Not reported
Hazmat No of Buildings Evacuated: Not reported
Incident Content Loss: Not reported
Civilian Casualty Patient Disposition: Not reported
Incident Mixed Use Property: Not reported
Location Type: Not reported
Incident Aid Given Or Received: Not reported
Incident AID Received from FDID: Not reported
Incident Aided Department FDID: Not reported
Person Involved Business Name: Not reported
Person Involved First Name: Not reported
Person Involved Last Name: Not reported
Person Involved Type: Not reported
Person Involved Phone Number: Not reported
Person Involved Primary Language: Not reported
Hazmat Evacuated Measurement: Not reported
Hazmat Story of Release: Not reported
Remark: Not reported

ALASKA AIRLINES (Continued) **U001150065**

Incident District:	PORTLAND BUREAU OF F&R&EMS
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	5032437946
Osfm Incident Report Number:	870066
Dept. Responding:	PORTLAND BUREAU OF F&R&EMS
Person Making Report:	PERRY SIGLER
Title:	LT. HM-16
Agency:	PORTLAND BUREAU OF F&R&EMS
Phone:	5032437946
Date Of Incident:	08/25/1987
Call Time:	12:00:00 AM
In Route:	12:00:00 AM
Arrival:	8:24:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	9:30:00 PM
Dist Of Incident:	PORTLAND BUREAU OF F&R&EMS
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	Not reported
Agency Report Number:	87-28478
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Not reported
Area Type:	Commercial
Responsible Party(Ies):	GARY BANKSTON
Company:	ALASKA AIRLINES
Respcontact:	Not reported
Address:	PORTLAND INTL AIRPRT
Resp City:	PORTLAND
Resp State:	Not reported
Resp ZipCode:	97218
Phone:	Not reported
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	In Route
Cause:	Unknown
Vehicle And Cargo:	1000
Fixed Property:	0
Total Loss:	$1,000.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Hazmat Disposition: Not reported

Chemical:
Chemical Info: 2286
Chemical Id: 14963
Incident Id: 870066
Chemical Name: HYDRAULIC OIL
UNNA: Not reported
Amount At Risk: 1
Amount Released: 1
Amount Measured: 2
Biological: False
Radiological: False

Chemical Id: 14963
Chemical Name: HYDRAULIC OIL
Hazardous Ingredient: BASE LUBRICATING OILS
Hazardous Class 1: 4.5
Hazardous Class 2: Not reported
Hazardous Rank: 2
Case Number: 64742547
UNNA Number: 1270
EPA Pest Reg: Not reported
EHA Chem: Not reported
PSM Chem: Not reported
CAA 112R Chem: Not reported

Method:
Method Used Id: 6887
Incident Id: 870066
Identity Method: 1

Released:
Release Behavior Id: 6890
Incident Id: 870066
Behavior: 10

Narrative:
Narrative Id: 1897
Incident Id: 870066
Incident Narrative: BOX ABOARD AIRCRAFT ON RAMP FOUND TO CONTAIN HYDRAULIC OIL. SMALL AMOUNT HAD LEAKED INTO CARGO COMPARTMENT PRIOR TO IDENTIFYING AND CONTAINING THE MATERIAL. BOX ABOARD AIRCRAFT ON RAMP FOUND TO CONTAIN
Incident Date: 8/25/1987

OR AIRS:
Year: Not reported
Emission: Not reported
Permit Number: 26-9610-22-01
Permit Type: General (5) ACDP
Expiration Date: 03/01/2020
Source ID: Not reported
Issue Date: 02/22/2011
NAICS Code: 447190

ALASKA AIRLINES (Continued) **U001150065**

Is Primary:	Not reported
SIC Code:	Not reported
Is Primary:	Not reported
Latitude:	45.5890
Longitude:	-122.5931
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

HSIS:

Facility ID:	106847
Department Or Division Of Company:	TERMINAL (981274)
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	N
Contains 112R:	N
NAICS Code 1:	517212
NAICS Desc 1:	CELLULAR & OTHER WIRELESS TELECOMMUNICATIO
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	RONAN DUNNE
Business Phone:	9086266230
Mailing Address:	20 INDEPENDENCE BLVD MC#4149
Mailing City:	WARREN
Mailing State:	NJ
Mailing Zip:	07059
No. of Employees:	0
Day Phone:	2067187283
Placard:	N
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	CRAIG MATTHEWS
Emergency Procedure:	Not reported
Business Type:	WIRELESS COMMUNICATIONS - CELL SITE
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	106847
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

ALASKA AIRLINES (Continued) **U001150065**

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Facility ID:	121059
Department Or Division Of Company:	PORTLAND STATION
Extremely Hazardous Substance:	Y
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	481111
NAICS Desc 1:	SCHEDULED PASSENGER AIR TRANS
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	DAVE CAMPBELL
Business Phone:	5033843084
Mailing Address:	7000 NE AIRTRANS WAY, A GATES
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	80
Day Phone:	5033843084
Placard:	N
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	KEN CODY
Emergency Procedure:	VARIOUS POINT THRU FACILITY
Business Type:	SCHEDULED PASSENGER AIR TRANSPORTATION
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	121059
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material

ALASKA AIRLINES (Continued) **U001150065**

Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Facility ID:	092310
Department Or Division Of Company:	RENT A CAR
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	532111
NAICS Desc 1:	PASSENGER CAR RENTAL
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	DIRK MASON
Business Phone:	5035287920
Mailing Address:	216 16TH ST STE 1500
Mailing City:	DENVER
Mailing State:	CO
Mailing Zip:	80202
No. of Employees:	79
Day Phone:	5035287912
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	DIRK MASON
Emergency Procedure:	ADMIN OFFICE
Business Type:	CAR RENTAL
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	GASOLINE
Physical Description:	LIQUID
Case Number:	8006619
Facility Id:	092310
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	21
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	B
Description:	UNDERGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1203
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS

ALASKA AIRLINES (Continued) **U001150065**

Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	GASOLINE
United Nations/north America 4 Digit Class Number:	1203
Chemical Abstract Service Identifier Number:	8006619
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Y
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Facility ID:	033393
Department Or Division Of Company:	PDX
Extremely Hazardous Substance:	N
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	481111
NAICS Desc 1:	SCHEDULED PASSENGER AIR TRANS
NAICS Code 2:	481112
NAICS Desc 2:	SCHEDULED FREIGHT AIR TRANS
Manager Name:	OSCAR MUNOZ
Business Phone:	5033357662
Mailing Address:	7000 NE AIRPORT WAY STE 2117
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97218
No. of Employees:	180
Day Phone:	5033357662
Placard:	N
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	JEFF BARROW
Emergency Procedure:	IN OFFICES
Business Type:	AIRLINE
Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	NITROGEN
Physical Description:	GAS
Case Number:	7727379
Facility Id:	033393
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	11
Max Amt Possessed During Year CD:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999

ALASKA AIRLINES (Continued) **U001150065**

Most Hazardous Ingridient:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Chemical Abstract Service Identifier Number:	7727379
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	033393
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999

ALASKA AIRLINES (Continued) **U001150065**

Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	033393
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	21
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	5,000-9,999

ALASKA AIRLINES (Continued) **U001150065**

Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Facility ID:	033407
Department Or Division Of Company:	ENVIRONMENTAL AFFAIRS
Extremely Hazardous Substance:	Y
Facility Has Written Emergency Plan:	Y
Contains 112R:	N
NAICS Code 1:	481111
NAICS Desc 1:	SCHEDULED PASSENGER AIR TRANS
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	BILL AYER
Business Phone:	5033843172
Mailing Address:	PO BOX 68900-SEAZE
Mailing City:	SEATTLE
Mailing State:	WA
Mailing Zip:	98168
No. of Employees:	65
Day Phone:	5033843172
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	MIKE LARA
Emergency Procedure:	Not reported
Business Type:	PASSENGER AIRLINE

ALASKA AIRLINES (Continued) **U001150065**

Facility Type:	Not reported
Division/Department:	Not reported
Facility Status:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Latest Report ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	Not reported
Maximum DailyAmount Unit:	Not reported
Chemical Added Date:	Not reported
Is ChemPSM:	Not reported
Is Chem112r:	Not reported
Is Chem302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
No# of Days Onsite:	Not reported
Latitude:	Not reported
Longitude:	Not reported

Facility:

Chemical Name:	AIRCRAFT DEICING FLUID
Physical Description:	LIQUID
Case Number:	57556
Facility Id:	033407
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	30
Max Amt Possessed During Year CD:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	R
Description:	OTHER
Type Code:	A
Temperature Description:	ABOVEGROUND TANK
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4

ALASKA AIRLINES (Continued) **U001150065**

Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	PROPYLENE GLYCOL
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	AIRCRAFT DEICING FLUID
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	57556
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	NITROGEN
Physical Description:	GAS
Case Number:	7727379
Facility Id:	033407
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Chemical Abstract Service Identifier Number:	7727379
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	033407
Physical State Of The Substance:	3
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Chemical Abstract Service Identifier Number:	7782447
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	033407
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Facility ID:	047360
Department Or Division Of Company:	Not reported
Extremely Hazardous Substance:	Not reported
Facility Has Written Emergency Plan:	Not reported
Contains 112R:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
Manager Name:	Not reported
Business Phone:	Not reported
Mailing Address:	Not reported
Mailing City:	Not reported
Mailing State:	Not reported
Mailing Zip:	Not reported
No. of Employees:	Not reported
Day Phone:	Not reported
Placard:	Not reported
Fire Dept Code:	Not reported
FD:	PORTLAND FIRE & RESCUE

ALASKA AIRLINES (Continued) **U001150065**

Sprinkler System:	Not reported
Emergency Contact:	Not reported
Emergency Procedure:	Not reported
Business Type:	Not reported
Facility Type:	Private
Division/Department:	PDX
Facility Status:	ACTIVE
Status TRI:	Active
Status RMP:	Active
Status PSM:	Active
Status CR2K:	Active
Status 302:	Active
Owner Name:	Rennie Shaffer
Latest Report ID:	33288
Case Number:	57556
Chemical Name:	DEICING FLUID PG
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	30
Maximum DailyAmount Unit:	gal
Chemical Added Date:	09/12/2017
Is ChemPSM:	No
Is Chem112r:	No
Is Chem302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Physical HNOC
No# of Days Onsite:	365
Latitude:	45.5895
Longitude:	-122.594

Facility:

Chemical Name:	DEICING FLUID PG
Physical Description:	LIQUID
Case Number:	57556
Facility Id:	047360
Physical State Of The Substance:	2
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	21
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PROPYLENE GLYCOL
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical:

Chemical Name:	DEICING FLUID PG
United Nations/north America 4 Digit Class Number:	Not reported
Chemical Abstract Service Identifier Number:	57556
Chemical Is Extremely Hazardous Substance (EHS):	Not reported
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Facility ID:	106847
Department Or Division Of Company:	Not reported
Extremely Hazardous Substance:	Not reported
Facility Has Written Emergency Plan:	Not reported
Contains 112R:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
Manager Name:	Not reported
Business Phone:	Not reported
Mailing Address:	Not reported
Mailing City:	Not reported
Mailing State:	Not reported
Mailing Zip:	Not reported
No. of Employees:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Day Phone:	Not reported
Placard:	Not reported
Fire Dept Code:	Not reported
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Not reported
Emergency Contact:	Not reported
Emergency Procedure:	Not reported
Business Type:	Not reported
Facility Type:	Private
Division/Department:	-981274
Facility Status:	ACTIVE
Status TRI:	Active
Status RMP:	Active
Status PSM:	Active
Status CR2K:	Inactive
Status 302:	Active
Owner Name:	Susan Calderon
Latest Report ID:	32869
Case Number:	7440020
Chemical Name:	BATTERIES NICAD
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum DailyAmount Code:	20
Maximum DailyAmount Unit:	lbs
Chemical Added Date:	11/07/2018
Is ChemPSM:	No
Is Chem112r:	No
Is Chem302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid
UNNA Number:	N/A
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Acute, Health Carcinogenicity, Health Germ, Health ReproductiveToxicity, Health Respiratory, Health SeriousEye, Health SkinCorrosion, Health SpecificOrganToxicity
No# of Days Onsite:	60
Latitude:	45.5883
Longitude:	-122.593

Facility:

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	106847
Physical State Of The Substance:	1
Avag Amt Possessed During Year CD:	20
Max Amt Possessed During Year CD:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER

ALASKA AIRLINES (Continued) **U001150065**

Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical:

Chemical Name:	LEAD ACID BATTERIES
United Nations/north America 4 Digit Class Number:	2794
Chemical Abstract Service Identifier Number:	Not reported
Chemical Is Extremely Hazardous Substance (EHS):	N
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	Y
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

NPDES:

WQ File Nbr:	119339
Legal Name:	BURNS & MCDONNELL ENGINEERING COMPANY, INC
Region:	Not reported
Pri SIC:	1542
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Permit Type:	GEN12C
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	121841
Legal Name:	KNIFE RIVER CORPORATION - NORTHWEST
Region:	Not reported
Pri SIC:	1541
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12A
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	121841
Legal Name:	KNIFE RIVER CORPORATION - NORTHWEST
Region:	Not reported
Pri SIC:	1541
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12C
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported
WQ File Nbr:	107220
Legal Name:	PORT OF PORTLAND & CO-APPLICANTS
Region:	Not reported
Pri SIC:	4581
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12T
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported
WQ File Nbr:	107220
Legal Name:	PORT OF PORTLAND & CO-APPLICANTS
Region:	Not reported
Pri SIC:	4581
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN15B
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported

ALASKA AIRLINES (Continued) **U001150065**

Start Date:	Not reported
Region Decode:	Not reported
WQ File Nbr:	107220
Legal Name:	PORT OF PORTLAND & CO-APPLICANTS
Region:	Not reported
Pri SIC:	4581
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	NPDES-IW-B16
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported
WQ File Nbr:	107220
Legal Name:	PORT OF PORTLAND & CO-APPLICANTS
Region:	NWR
Pri SIC:	4581
Facility Type:	AIRPORTS, FIELDS, & SERVICES
Latitude:	45.589
Longitude:	-122.5931
Category:	IND
Permit Type:	GEN17B
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Industrial Wastewater; WPCF wash water
Expiration Date:	10/31/2017
EPA Number:	n/a
UIC Facility:	False
Admin Agent:	NW Region Office
Last Action Date:	08/28/2017
Permit Writer:	RUBY
Compliance Inspector:	RUBY
DMR Reviewer:	RUBY
Application Number:	953893
Class:	N/A
Start Date:	04/23/2002
Region Decode:	North West Region
WQ File Nbr:	107220
Legal Name:	PORT OF PORTLAND & CO-APPLICANTS
Region:	NWR
Pri SIC:	4581

ALASKA AIRLINES (Continued) **U001150065**

Facility Type:	AIRPORTS, FIELDS, & SERVICES
Latitude:	45.589
Longitude:	-122.5931
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR800234
UIC Facility:	False
Admin Agent:	NW Region Office
Last Action Date:	08/01/2017
Permit Writer:	Kennedy
Compliance Inspector:	Kennedy
DMR Reviewer:	Kennedy
Application Number:	957233
Class:	MINOR
Start Date:	02/11/2000
Region Decode:	North West Region

WQ File Nbr:	107220
Legal Name:	PORT OF PORTLAND & CO-APPLICANTS
Region:	NWR
Pri SIC:	4581
Facility Type:	AIRPORTS, FIELDS, & SERVICES
Latitude:	45.589
Longitude:	-122.5931
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR800234
UIC Facility:	False
Admin Agent:	NW Region Office
Last Action Date:	08/01/2017
Permit Writer:	Kennedy
Compliance Inspector:	Kennedy
DMR Reviewer:	Kennedy
Application Number:	957233
Class:	MINOR
Start Date:	02/11/2000
Region Decode:	North West Region

Count: 3 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
PORTLAND	S106497099	COLUMBIA SLOUGH	31.5 MILES OF WATERWAY OVER AN		OR CRL, OR ECSI, OR ENG CONTRC
PORTLAND	S110764041	ODOT - PORTLAND HARBOR SOURCE CONT	ODOT FACILITIES WITHIN PORTLAN		OR ECSI, OR VCP
PORTLAND	S106497104	V.A.- COLUMBIA SOUTH SHORE WELLFIE	N OF COLUMBIA/SANDY BLVDS. BET		OR ECSI

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/06/2019
Date Data Arrived at EDR: 02/15/2019
Date Made Active in Reports: 03/15/2019
Number of Days to Update: 28

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/14/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 02/06/2019
Date Data Arrived at EDR: 02/15/2019
Date Made Active in Reports: 03/15/2019
Number of Days to Update: 28

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/14/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 43

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/07/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/31/2019
Date Data Arrived at EDR: 02/04/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/31/2019
Date Data Arrived at EDR: 02/04/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 02/04/2019
Date Data Arrived at EDR: 02/08/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 28

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ECSI: Environmental Cleanup Site Information System

Sites that are or may be contaminated and may require cleanup.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/03/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 48

Source: Department of Environmental Quality
Telephone: 503-229-6629
Last EDR Contact: 04/02/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

CRL: Confirmed Release List and Inventory

All facilities with a confirmed release.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 11/15/2018
Date Made Active in Reports: 12/10/2018
Number of Days to Update: 25

Source: Department of Environmental Quality
Telephone: 503-229-6170
Last EDR Contact: 02/14/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Facilities List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 01/14/2019
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 36

Source: Department of Environmental Quality
Telephone: 503-229-6299
Last EDR Contact: 01/11/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Semi-Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 10/03/2018
Date Data Arrived at EDR: 11/15/2018
Date Made Active in Reports: 12/11/2018
Number of Days to Update: 26

Source: Department of Environmental Quality
Telephone: 503-229-5790
Last EDR Contact: 02/14/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/12/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Varies

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 10/03/2018
Date Data Arrived at EDR: 11/15/2018
Date Made Active in Reports: 12/10/2018
Number of Days to Update: 25
Source: Department of Environmental Quality
Telephone: 503-229-5815
Last EDR Contact: 02/14/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

AST: Aboveground Storage Tanks
Aboveground storage tank locations reported to the Office of State Fire Marshal.

Date of Government Version: 01/17/2019
Date Data Arrived at EDR: 01/23/2019
Date Made Active in Reports: 03/18/2019
Number of Days to Update: 54
Source: Office of State Fire Marshal
Telephone: 503-378-3473
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Controls Recorded at ESCI Sites

Engineering controls are physical measures selected or approved by the Director for the purpose of preventing or minimizing exposure to hazardous substances. Engineering controls may include, but are not limited to, fencing, capping, horizontal or vertical barriers, hydraulic controls, and alternative water supplies.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/03/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 48

Source: Department of Environmental Quality
Telephone: 503-229-5193
Last EDR Contact: 04/02/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

INST CONTROL: Institutional Controls Recorded at ESCI Sites

An institutional control is a legal or administrative tool or action taken to reduce the potential for exposure to hazardous substances. Institutional controls may include, but are not limited to, use restrictions, environmental monitoring requirements, and site access and security measures.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/03/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 48

Source: Department of Environmental Quality
Telephone: 503-229-5193
Last EDR Contact: 04/02/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/25/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Varies

VCS: Voluntary Cleanup Program Sites

Responsible parties have entered into an agreement with DEQ to voluntarily address contamination associated with their property.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 36

Source: DEQ
Telephone: 503-229-5256
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Projects

Brownfields investigations and/or cleanups that have been conducted in Oregon.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 11/15/2018
Date Made Active in Reports: 12/10/2018
Number of Days to Update: 25

Source: Department of Environmental Quality
Telephone: 503-229-6801
Last EDR Contact: 02/14/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Annually

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/17/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 24

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/19/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: Recycling Facility Location Listing

A listing of recycling facility locations.

Date of Government Version: 11/27/2018
Date Data Arrived at EDR: 11/29/2018
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 83

Source: Department of Environmental Quality
Telephone: 503-229-5353
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Quarterly

HIST LF: Old Closed SW Disposal Sites

A list of solid waste disposal sites that have been closed for a long while.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 07/08/2003
Date Made Active in Reports: 07/18/2003
Number of Days to Update: 10

Source: Department of Environmental Quality
Telephone: 503-229-5409
Last EDR Contact: 07/08/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/13/2019
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39
Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176
Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 02/01/2019
Next Scheduled EDR Contact: 05/13/2019
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

AOC MU: East Multnomah County Area
Approximate extent of TSA VOC plume February , 2002

Date of Government Version: N/A
Date Data Arrived at EDR: 10/07/2002
Date Made Active in Reports: 10/22/2002
Number of Days to Update: 15
Source: City of Portland Environmental Services
Telephone: 503-823-5310
Last EDR Contact: 03/13/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 09/21/2018
Date Data Arrived at EDR: 09/21/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 49
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: No Update Planned

AOC COL: Columbia Slough
Columbia Slough waterway boundaries.

Date of Government Version: 08/10/2005
Date Data Arrived at EDR: 05/17/2006
Date Made Active in Reports: 06/16/2006
Number of Days to Update: 30
Source: City of Portland Environmental Services
Telephone: 503-823-5310
Last EDR Contact: 03/13/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CDL: Uninhabitable Drug Lab Properties
The properties listed on these county pages have been declared by a law enforcement agency to be unfit for use due to meth lab and/or storage activities. The properties are considered uninhabitable until cleaned up by a state certified decontamination contractor and a certificate of fitness is issued by the Oregon Health Division.

Date of Government Version: 01/28/2019
Date Data Arrived at EDR: 01/30/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 21
Source: Department of Consumer & Business Services
Telephone: 503-378-4133
Last EDR Contact: 01/30/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

CDL 2: Clandestine Drug Lab Site Listing
A listing of clandestine drug lab site locations included in the Incident database.

Date of Government Version: 10/29/2018
Date Data Arrived at EDR: 10/31/2018
Date Made Active in Reports: 12/10/2018
Number of Days to Update: 40
Source: Oregon State Police
Telephone: 503-373-1540
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/21/2018
Date Data Arrived at EDR: 09/21/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 49
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Quarterly

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 7
Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 03/14/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 02/08/2019
Date Data Arrived at EDR: 02/08/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 41
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

SPILLS: Spill Data
Oil and hazardous material spills reported to the Environmental Response Program.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 01/04/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 47
Source: Department of Environmental Quality
Telephone: 503-229-5815
Last EDR Contact: 04/01/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Semi-Annually

HAZMAT: Hazmat/Incidents
Hazardous material incidents reported to the State Fire Marshal by emergency responders. The hazardous material may or may not have been released.

Date of Government Version: 09/05/2018
Date Data Arrived at EDR: 10/31/2018
Date Made Active in Reports: 12/10/2018
Number of Days to Update: 40

Source: State Fire Marshal's Office
Telephone: 503-373-1540
Last EDR Contact: 02/01/2019
Next Scheduled EDR Contact: 05/13/2019
Data Release Frequency: Semi-Annually

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 04/03/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/12/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/12/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/15/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 01/31/2019
Date Data Arrived at EDR: 02/04/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/22/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/20/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 03/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/14/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2019
Date Data Arrived at EDR: 02/14/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 08/13/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 36

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 03/14/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 09/14/2018
Date Data Arrived at EDR: 10/11/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 57

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/10/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 04/08/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/02/2019
Date Data Arrived at EDR: 01/03/2019
Date Made Active in Reports: 03/15/2019
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/02/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 01/29/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 51

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 02/11/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 38

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/11/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/22/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/27/2018
Date Data Arrived at EDR: 02/27/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 33

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/01/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/01/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/21/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/15/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 03/15/2019
Number of Days to Update: 10

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 03/01/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 03/03/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 04/09/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/14/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 02/21/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 39
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Quarterly

AIRS: Oregon Title V Facility Listing
A listing of Title V facility source and emissions information.

Date of Government Version: 12/28/2018
Date Data Arrived at EDR: 01/03/2019
Date Made Active in Reports: 02/19/2019
Number of Days to Update: 47
Source: Department of Environmental Quality
Telephone: 503-229-6459
Last EDR Contact: 04/01/2019
Next Scheduled EDR Contact: 04/17/2047
Data Release Frequency: Annually

COAL ASH: Coal Ash Disposal Sites Listing
A listing of coal ash disposal sites.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 03/16/2018
Date Made Active in Reports: 05/15/2018
Number of Days to Update: 60
Source: Department of Environmental Quality
Telephone: 541-298-7255
Last EDR Contact: 03/04/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

DRYCLEANERS: Drycleaning Facilities
A listing of registered drycleaning facilities in Oregon.

Date of Government Version: 11/05/2018
Date Data Arrived at EDR: 11/07/2018
Date Made Active in Reports: 12/10/2018
Number of Days to Update: 33
Source: Department of Environmental Quality
Telephone: 503-229-6783
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Annually

ENF: Enforcement Action Listing
Enforcement actions

Date of Government Version: 12/17/2018
Date Data Arrived at EDR: 12/19/2018
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 63
Source: Department of Environmental Quality
Telephone: 503-229-5696
Last EDR Contact: 03/20/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Quarterly

Financial Assurance 1: Financial Assurance Information Listing
Financial assurance information for hazardous waste facilities.

Date of Government Version: 08/20/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 64
Source: Department of Environmental Quality
Telephone: 541-633-2011
Last EDR Contact: 03/04/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Semi-Annually

Financial Assurance 2: Financial Assurance Information Listing

Financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/15/2018
Date Data Arrived at EDR: 11/16/2018
Date Made Active in Reports: 12/10/2018
Number of Days to Update: 24

Source: Department of Environmental Quality
Telephone: 503-229-5521
Last EDR Contact: 02/19/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Semi-Annually

HSIS: Hazardous Substance Information Survey

Companies in Oregon submitting the Hazardous Substance Information Survey and either reporting or not reporting hazardous substances.

Date of Government Version: 01/29/2019
Date Data Arrived at EDR: 01/30/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 21

Source: State Fire Marshal's Office
Telephone: 503-373-1540
Last EDR Contact: 01/30/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Semi-Annually

OR MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 08/06/2018
Date Made Active in Reports: 08/15/2018
Number of Days to Update: 9

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Annually

NPDES: Wastewater Permits Database

A listing of permitted wastewater facilities.

Date of Government Version: 01/29/2019
Date Data Arrived at EDR: 01/30/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 21

Source: Department of Environmental Quality
Telephone: 503-229-5657
Last EDR Contact: 01/30/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

UIC: Underground Injection Control Program Database

DEQ's Underground Injection Control Program is authorized by the Environmental Protection Agency (EPA) to regulate all underground injection in Oregon to protect groundwater resources.

Date of Government Version: 12/21/2018
Date Data Arrived at EDR: 12/27/2018
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 55

Source: Department of Environmental Quality
Telephone: 503-229-5945
Last EDR Contact: 03/25/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Oregon.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Oregon.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Oregon.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/27/2013
Number of Days to Update: 179

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/30/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/30/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/11/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association’s annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Listings
Source: Employment Department
Telephone: 503-947-1420

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory Data
Source: Oregon Geospatial Enterprise Office
Telephone: 503-378-2166

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

PANG BASE ENCLAVE
6801 NE CORNFOOT RD
PORTLAND, OR 97218

TARGET PROPERTY COORDINATES

Latitude (North):	45.57553 - 45° 34' 31.91''
Longitude (West):	122.59845 - 122° 35' 54.42''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	531330.8
UTM Y (Meters):	5046748.5
Elevation:	22 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	6067232 MOUNT TABOR, OR
Version Date:	2014

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

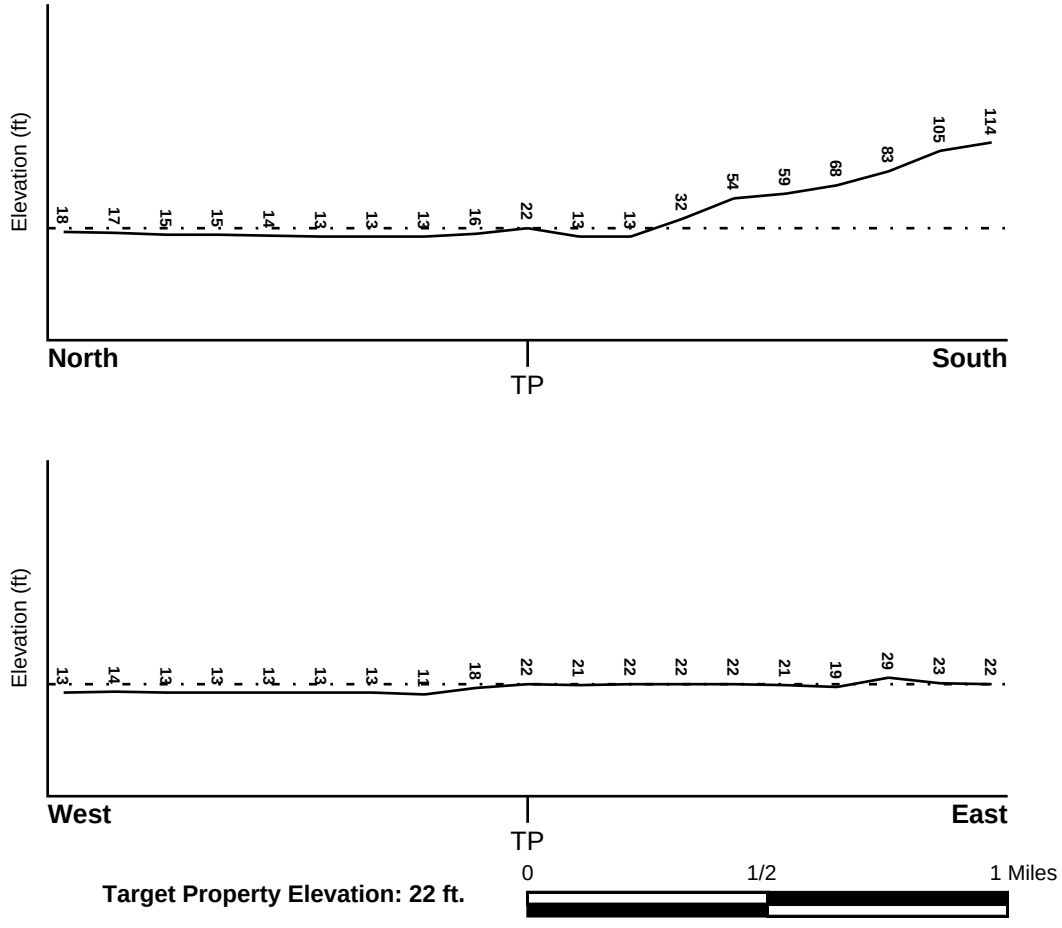
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 22 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
4101830105F	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
41051C0180H	FEMA FIRM Flood data
4101790180B	FEMA Q3 Flood data
4101790190A	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
MOUNT TABOR	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

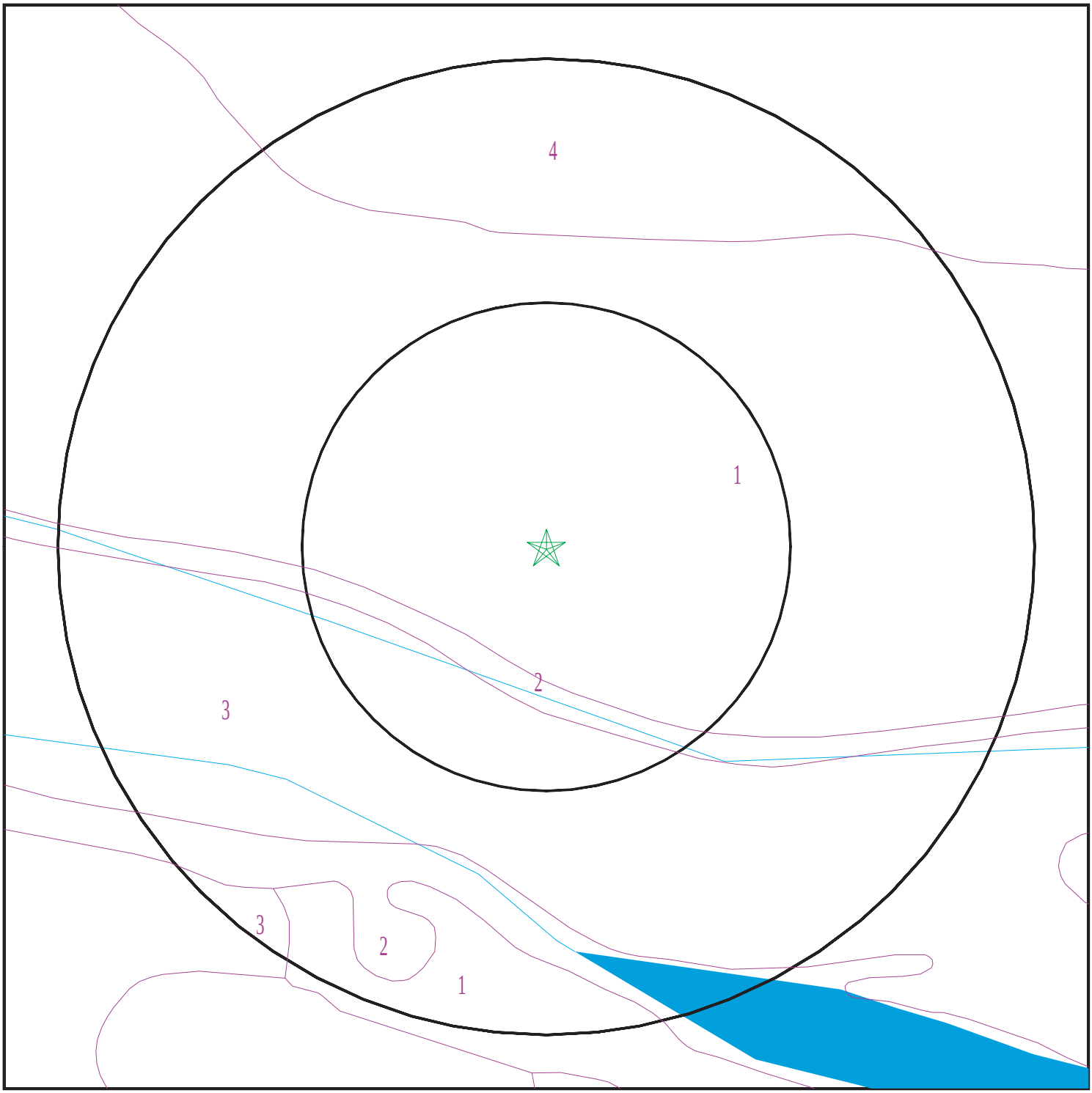
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5621379.2s



SITE NAME:	PANG Base Enclave	CLIENT:	AECOM
ADDRESS:	6801 NE Cornfoot Rd Portland OR 97218	CONTACT:	Brittany Kirchmann
		INQUIRY #:	5621379.2s
LAT/LONG:	45.57553 / 122.59845	DATE:	April 15, 2019 12:05 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Sauvie

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 5 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 5.6
2	14 inches	38 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 5.6
3	38 inches	59 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 5.6

Soil Map ID: 2

Soil Component Name: Water

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 3

Soil Component Name: Sauvie

Soil Surface Texture: silt loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Poorly drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 5.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	14 inches	38 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 5.6
3	38 inches	59 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 5.6

Soil Map ID: 4

Soil Component Name: Pilchuck

Soil Surface Texture: sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	11 inches	59 inches		Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000994059	1/2 - 1 Mile SSE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

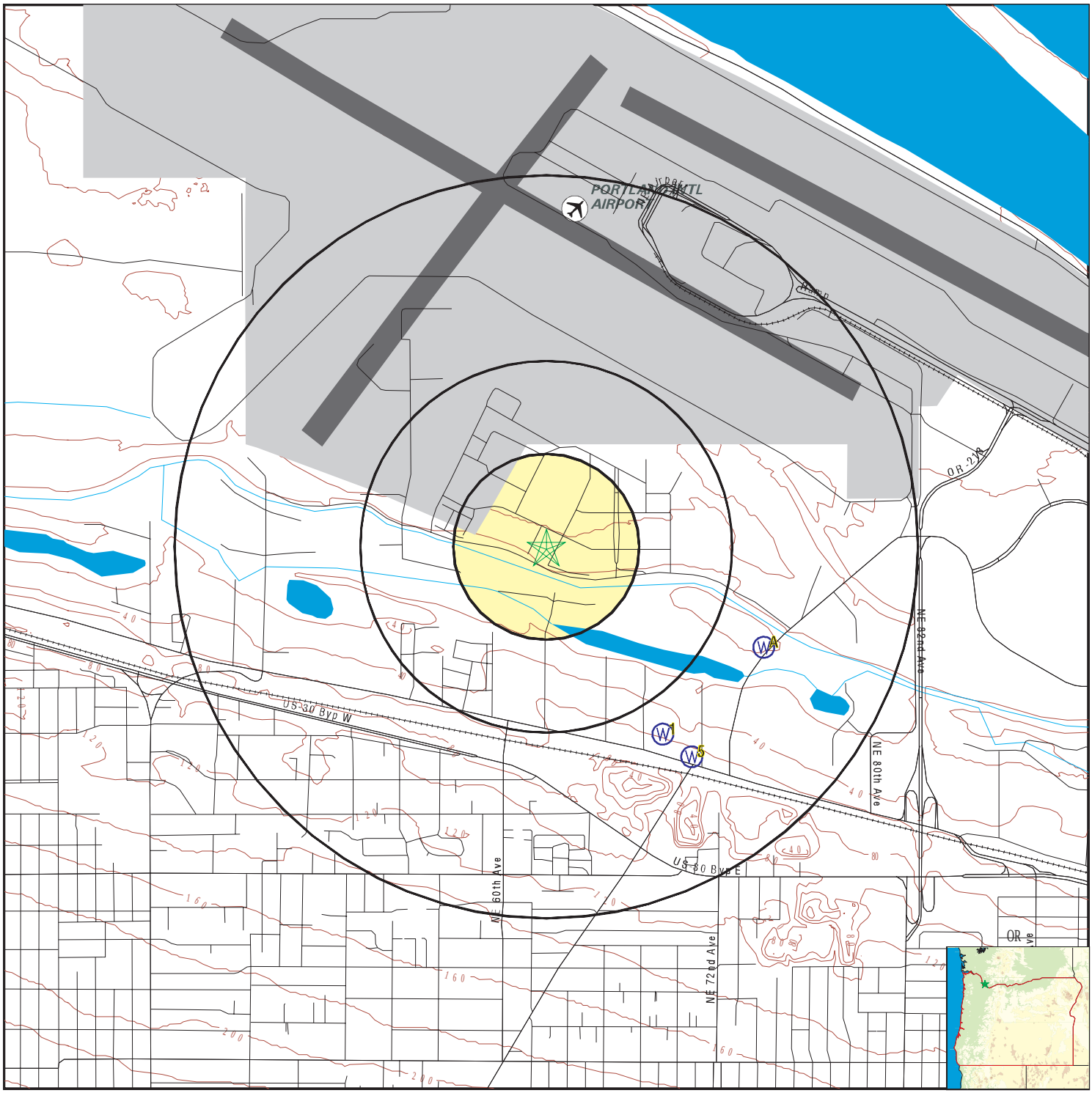
MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	ORW600000007449	1/2 - 1 Mile ESE
A3	ORW600000007451	1/2 - 1 Mile ESE
A4	ORW600000007450	1/2 - 1 Mile ESE
5	ORW600000003550	1/2 - 1 Mile SE

PHYSICAL SETTING SOURCE MAP - 5621379.2s



- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Oil, gas or related wells

SITE NAME:	PANG Base Enclave	CLIENT:	AECOM
ADDRESS:	6801 NE Cornfoot Rd Portland OR 97218	CONTACT:	Brittany Kirchmann
LAT/LONG:	45.57553 / 122.59845	INQUIRY #:	5621379.2s
		DATE:	April 15, 2019 12:05 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SSE
1/2 - 1 Mile
Higher

FED USGS **USGS40000994059**

Organization ID:	USGS-OR	Organization Name:	USGS Oregon Water Science Center
Monitor Location:	01N/02E-17CAD	Type:	Well
Description:	NAWQA data entry com.&ver.09/08/1999 Hinkle SR		
HUC:	17090012	Drainage Area:	Not Reported
Drainage Area Units:	Not Reported	Contrib Drainage Area:	Not Reported
Contrib Drainage Area Unts:	Not Reported		
Aquifer:	Willamette Lowland basin-fill aquifers		
Formation Type:	Quaternary Alluvium	Aquifer Type:	Unconfined single aquifer
Construction Date:	19590205	Well Depth:	70
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1959-02-05
Feet below surface:	46.00	Feet to sea level:	Not Reported
Note:	Not Reported		

A2
ESE
1/2 - 1 Mile
Higher

OR WELLS **ORW600000007449**

Well Log ID:	MULT 72091	Last Update:	12/23/2005
Well Tag:	41165	State Obs Well #:	0
Observation Well:	Not Reported	Recorder Well:	Not Reported
Obs Well Flag:	Not Reported	Surface Elevation:	0

A3
ESE
1/2 - 1 Mile
Higher

OR WELLS **ORW600000007451**

Well Log ID:	MULT 72092	Last Update:	12/23/2005
Well Tag:	41164	State Obs Well #:	0
Observation Well:	Not Reported	Recorder Well:	Not Reported
Obs Well Flag:	Not Reported	Surface Elevation:	0

A4
ESE
1/2 - 1 Mile
Lower

OR WELLS **ORW600000007450**

Well Log ID:	MULT 72093	Last Update:	12/23/2005
Well Tag:	41163	State Obs Well #:	0
Observation Well:	Not Reported	Recorder Well:	Not Reported
Obs Well Flag:	Not Reported	Surface Elevation:	0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
5 **SE** **1/2 - 1 Mile** **Higher**		**OR WELLS**	**ORW600000003550**

Well Log ID:	MULT 1152	Last Update:	01/01/1990
Well Tag:	0	State Obs Well #:	0
Observation Well:	Not Reported	Recorder Well:	Not Reported
Obs Well Flag:	Not Reported	Surface Elevation:	65

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: OR Radon

Radon Test Results

Zipcode	Num Tests	Maximum	Minimum	Average	# > 4 pCi/L
97218	27	14.3	0.2	4.3	11

Federal EPA Radon Zone for MULTNOMAH County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for MULTNOMAH COUNTY, OR

Number of sites tested: 33

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area	1.530 pCi/L	91%	9%	0%
Basement	2.630 pCi/L	57%	43%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory Data
Source: Oregon Geospatial Enterprise Office
Telephone: 503-378-2166

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Data
Source: Department of Water Resources
Telephone: 503-986-0843

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Locations
Source: Department of Geology and Mineral Industries
Telephone: 971-673-1540
A listing of oil and gas well locations in the state.

RADON

State Database: OR Radon
Source: Oregon Health Services
Telephone: 503-731-4272
Radon Levels in Orgeon

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Environmental Manager

Facility: PANG
Interviewer [redacted]
Date/Time: 9/18/18

Interviewee [redacted] **Title:** See below **Phone Number:** **Email:**	Can your name/role be used in the PA Report? (Y) or N Can you recommend anyone we can interview? (Y) or N [redacted]

1. Roles or activities with the Facility/years working at the Facility.

[redacted] - OMD Environmental Manager (~15 years)
[redacted] - OMD Cultural Resources Manager (~15 years)

2. Where can I find previous facility ownership information?

Will send

3. What can you tell us about the history of PFAS including aqueous film forming foam (AFFF) at the Facility? Was it used for any of the following activities, circle all that apply and indicate years of active use, if known? Identify these locations on a facility map.

Maintenance
Fire Training Areas
Firefighting (Active Fire)
Crash
Fire Suppression Systems (Hangers/Dining Facilities)
Fire Protection at Fueling Stations
Non-Technical/Recreational/ Pest Management
Metals Plating Facility
Waterproofing Uniforms (Laundry Facilities)
Other

None used past or present to knowkdge

4. Fill out CSM Information worksheet with the Environmental Manager. OK

5. Are any current buildings constructed with AFFF dispensing systems or fire suppression systems? What are the AFFF/suppression system test requirements? What is the frequency of testing the AFFF/suppression system? Do you have "As Built" drawings for the buildings?

No

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

6. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam? If retrofitted, when was that done?

NO

7. How is AFFF procured? Do you have an inventory/procurement system that tracks use?

N/A

8. What type of AFFF has been/is being used (3%, 6%, Mil Spec Mil-F-24385, High Expansion)? Manufacturer (3M, Dupont, Ansul, National Foam, Angus, Chemguard, Buckeye, Fire Service Plus)?

N/A

9. Where is the AFFF stored? How is it stored (tanks, 55-gallon drums, 5-gallon buckets)? What size are the storage tanks? Is the AFFF stored as a mixed solution (3% or 6%) or concentrated material?

N/A

10. How many FTAs are/were on this facility and where are they? Locate on a map. How many FTAs are active and inactive? For inactive FTAs, when was the last time that fire training using AFFF was conducted at them?

None

PA Interview Questionnaire - Environmental Manager

Facility: _____
Interviewer: _____
Date/Time: _____

11. When a release of AFFF occurs during a fire training exercise, now and in the past, how is the AFFF cleaned and disposed of? Were retention ponds built to store discharged AFFF? Was the AFFF trickled to the sanitary sewer or left in the pond to infiltrate?

N/A

12. Can you recall specific times when city, county, and/or state personnel came on-post for training? If so, please state which state/county agency or military entity? Do you have any records, including photographs to share with us?

NO

13. Did military routinely or occasionally fire train off-post? List the units that you can recall used/trained at various areas.

May train @ another ARNG facility; no specific knowledge of dates if training did occur

14. Did individual units come with their own safety personnel, did they also bring their own AFFF? Was training with AFFF part of these exercises? How were emergencies handled under these circumstances?

N/A

15. Are there specific emergency response incident reports (i.e., aircraft or vehicle crash sites and fires)? If so, may we please copy these reports? Who (entity) was the responder?

None for facility; possible @ adjacent airport

PA Interview Questionnaire - Environmental Manager

Facility: _____
Interviewer: _____
Date/Time: _____

16. Do you have records of fuel spill logs? Was it common practice to wash away fuel spills with AFFF? Is/was AFFF used as a precaution in response to fuel releases or emergency runway landings to prevent fires?

No; not common practice; facility may keep spill log records but no AFFF

17. Was AFFF used for forest fires or fire management on-post/off-post? If so, please describe what happened and who was involved?

No

18. Are there mutual aid/use agreements between county, city, and local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement?

Informal; any structural fire would be responded to by City of Portland or Portland International Airport

19. Can you provide any other locations where AFFF has been stored, released, or used (i.e. hangars, buildings, fire stations, firefighting equipment testing and maintenance areas, emergency response sites, storm water/surface water, waste treatment plants, and AFFF ponds)?

N/A

20. Are you aware of any other creative uses of AFFF? If so, how was AFFF used? What entities were involved?

NO

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

21. Are there past studies you are aware of with environmental information on plants/animals/ groundwater/soil types, etc., such as Integrated Cultural Resources Management Plans or Integrated Natural Resources Management Plans?

NO

22. What other records might be helpful to us (environmental compliance, investigation records, admin record) and where can we find them?

Associated environmental reports from ANG facility or Portland Airport (both adjacent)

23. Do you have or did you have a chrome plating shop on base? What were/are the years of operation of that chrome plating shop?

NO

24. Do you know whether the shop has/had a foam blanket mist suppression system or used a fume hood for emissions control? If foam blanket mist suppression was used, where was the foam stored, mixed, applied, etc.?

N/A

25. How is off-spec AFFF disposed (used for training, turned in, or given to a local Fire Station)? If applicable, do you know the name of the vendor that removes off-spec AFFF? Do you have copies of the manifest or B/L?

N/A

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

26. Do you recommend anyone else we can interview? If so, do you have contact information for them?

Facilities manager [redacted]

PA Interview Questionnaire - Other

Facility: PANG
Interviewer [redacted]
Date/Time: 9.14.18

Interviewee: [redacted] **Title:** Facilities Maintenance Mgr. **Phone Number:** — **Email:** —	Can your name/role be used in the PA Report? Y or N Can you recommend anyone we can interview? Y or N

Roles or activities with the Facility/Years working at the Facility:

Facilities Manager since ~ 2015

Manage / take care of various small related tasks around facility; make sure buildings + utilities are working properly

PFAS Use: Identify accidental/intentional release locations, time frame of release, frequency of releases, storage container size (maintenance, fire training, firefighting, buildings with suppression systems (as builts), fueling stations, crash sites, pest management, recreational, dining facilities, metals plating, or waterproofing). How are materials ordered/purchased/disposed/shared with others?

* No knowledge of AFFF or any other PFAS-related use, storage or release
* One fire extinguisher in kitchen (class K)
* No trainings on site / no overhead helicopter trainings
* Facility Environmental Manager ([redacted]) also no knowledge of AFFF-related activity

Known Uses
Use
Procurement
Disposition
Storage (Mixed)
Storage (Solution)
Inventory, Off-Spec
Containment
SOP on Filling
Leaking Vehicles
Nozzle and Suppression System Testing
Dining Facilities
Vehicle Washing
Ramp Washing
Fuel Spill Washing and Fueling Stations
Chrome Plating or Waterproofing

PA Interview Questionnaire - Other

Facility: _____
Interviewer: _____
Date/Time: _____

* Facility is on City of Portland water
* Previously a FMS however no AFFF or fire trucks (~3-4 years ago)
* Troops generally train @ Adair or Rilea
* OWS last pumped out ~2015
* No GW monitoring wells
* No SW treatment

Appendix B.2
Visual Site Inspection Checklists

Visual Survey Inspection Log

Recorded by: [redacted]
ARNG Contact: [redacted]
Date: 9/14/18

Source/Release Information

Site Name / Area Name / Unique ID: PANG Base Enclave
Site / Area Acreage:
Historic Site Use (Brief Description): Informal trainings; previous Air base; armory for storage
Current Site Use (Brief Description): Armory/storage of equipment; used b/c of close proximity to airport

1. Was AFFF used (or spilled) at the site/area? Y / (N)

2. Has usage been documented? Y / (N)
   2a. If yes, keep a record (place electronic files on a disk):

3. What types of businesses are located near the site? (Industrial) / (Commercial) / Plating / Waterproofing / (Residential)
   3a. Indicate what businesses are located near the site: Airport; large businesses; residential area

4. Is this site located at an airport/flightline? Y / (N)
   4a. If yes, provide a description of the airport/flightline tenants: No but directly adjacent (Portland International Airport)

Other Significant Site Features:

1. Does the facility have a fire suppression system? Y / (N) (Not at this particular location on FTIG)
   1a. If yes, indicate which type of AFFF has been used:
   1b. If yes, describe maintenance schedule/leaks:
   1c. If yes, how often is the AFFF replaced:
   1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing?

Transport / Pathway Information

Migration Potential:

1. Does site/area drainage flow off installation? (Y) / N
   1a. If so, note observation and location: Generally to Columbia Slough ~0.5 miles south

2. Is there channelized flow within the site/area? (Y) / N
   2a. If so, please note observation and location: Ditches and stormwater lines

3. Are monitoring or drinking water wells located near the site? (Y) / N
   3a. If so, please note the location: well field located directly east of facility (owned + operated by City of Portland)

4. Are surface water intakes located near the site? Y / (N)
   4a. If so, please note the location:

Significant Topographical Features:

1. Has the infrastructure changed at the site/area? Y / (N)
   1a. If so, please describe change (ex. Structures no longer exist):

Visual Survey Inspection Log

2. Is the site/area vegetated? Y / (N)

2a. If not vegetated, briefly describe the site/area composition:

3. Does the site or area exhibit evidence of erosion? Y (N)

3a. If yes, describe the location and extent of the erosion:

4. Does the site/area exhibit any areas of ponding or standing water? Y (N)

4a. If yes, describe the location and extent of the ponding:

Receptor Information

1. Is access to the site restricted? (Y) / N

1a. If so, please note to what extent: Gated entrance

2. Who can access the site? **(Site Workers) / (Construction Workers) (Trespassers) / Residential / Recreational Users / Ecological**

2a. Circle all that apply, note any not covered above:

3. Are residential areas located near the site? (Y) / N

3a. If so, please note the location/distance: Surrounding the site

4. Are any schools/day care centers located near the site? (Y) / N

4a. If so, please note the location/distance/type: Community college ~2 miles south

5. Are any wetlands located near the site? Y (N)

5a. If so, please note the location/distance/type:

Additional Notes

Photographic Log

Photo ID/Name	Date & Location	Photograph Description

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: PANG Base Enclave

Why has this location been identified as a site? Historic imagery indicated site may have been used as a vehicle maintenance shop and AFFF may have been stored or used at this site

Are there any other activities nearby that could also impact this location? Yes, potential activities from the nearby Portland International Airport or the adjacent ANG property may have impacted this facility

Training Events

Have any training events with AFFF occurred at this site? No

If so, how often? N/A

How much material was used? Is it documented? N/A

Identify Potential Pathways: Do we have enough information to fully understand over land surface water flow, groundwater flow, and geological formations on and around the facility? Any direct pathways to larger water bodies?

Surface Water:

Surface water flow direction? Varies depending on area of facility. Generally south towards the Columbia Slough, approximately 0.5 miles south

Average rainfall? 45.6 inches/year

Any flooding during rainy season? No

Direct or indirect pathway to ditches? Direct

Direct or indirect pathway to larger bodies of water? Indirect

Does surface water pond any place on site? No

Any impoundment areas or retention ponds? No

Any NPDES location points near the site? No

How does surface water drain on and around the flight line? N/A

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? Considerable variation between water-bearing units and fluctuations seasonally; some flow directions noted as west and northwest, while other measurements suggest fluctuating flow from northeast and south

Depth to groundwater? Generally, 2-10 feet bgs

Uses (agricultural, drinking water, irrigation)? Industrial and drinking water

Any groundwater treatment systems? No

Any groundwater monitoring well locations near the site? Yes. Monitoring wells located within the site;

Is groundwater used for drinking water? No, however, a well field is located directly east of the facility and periodically has treated, clean groundwater injected into the aquifer for future withdrawal during high-demand months

Are there drinking water supply wells on installation? No

Do they serve off-post populations? N/A

Are there off-post drinking water wells downgradient? Yes, see above comment on nearby well field. At least one residential drinking water well located approx. 1.5 miles southeast of the facility

Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? No

If so, do we understand the process and which water is/was treated at the plant? N/A

Do we understand the fate of sludge waste? N/A

Is surface water from potential contaminated sites treated? N/A

Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go?

N/A

2. Are nozzles tested? How often are nozzles tested? Where are nozzles tested? Are nozzles cleaned after use? Where does the rinse water flow after cleaning nozzles?

N/A

3. Other?

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker: No

Construction Worker: No

Recreational User: No

Residential: No

Child: No

Ecological: No

Note what is located near by the site (e.g. daycare, schools, hospitals, churches, agricultural, livestock)?

Industrial facilities (in all directions); adjacent airport (>0.2 miles north and east); nature park (1 mile southwest); church (2 miles south); golf course (1 mile southeast); college campus (1 mile southeast)

Documentation

Ask for Engineering drawings (if applicable). Okay

Has there been a reconstruction or changes to the drainage system? When did that occur? No

Appendix C
Photographic Log

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	PANG Base Enclave	Portland, Oregon

Photograph No. 1

Description:

Facing southeast. A small storage building located to the left (Building 04004) with the main facility building located to the right. (Building 04001).

Photograph No. 2

Description:

Facing northwest. View of the oil water separator on site which was last emptied in 2015.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	PANG Base Enclave	Portland, Oregon

Photograph No. 3

Description:

Facing southeast. View of one of the ammunition and vehicle storage units located on the west side of the facility.

Photograph No. 4

Description:

Non-PFAS containing fire extinguishers stored in Building 04005. All fire extinguishers contain ABC foam or Purple K.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	PANG Base Enclave	Portland, Oregon

Photograph No. 5

Description:

The non-PFAS containing fire extinguisher located within the kitchen of Building 04001.